Extended Reality Through VRChat

Madelene McFarlane

Old Dominion University

Abstract

Virtual Reality has expanded the interface of technology. Extended reality has provided

applications that benefit learning simulations, entertainment, communications, and more. While

the applications are vast that virtual reality has brought to society there is an application that

expands into a greater community and social structure. The application is known as VRChat.

VRChat is built to embody an avatar-based chatroom that is commonly accessed through virtual

reality mediums. On the surface of the application VRChat seems like any other trivial

entertainment medium that is used for causal play. Though within a deeper inspection a whole

system of communications is going on in the background that is channeled to many different

users in very different ways. These effects being within the range of educational, social,

detrimental, and even at times financial. This paper will discuss the application itself and the

technical interface of VRChat as an application for the everyday player.

The world of technology is in a constant state of growth in many different categories. This includes how the technology is presented to the user. Within recent years there has been a rise of virtual reality applications that serve many different functions for those that access them. Most of the created applications being used for their intended purpose and then set down. However, there is one application that has formed a deep web of communication and sub-cultures within it. This application is known as VRChat.

VRChat is an online application that serves as a 3D avatar-based chatroom. VRChat is built using the Unity engine and is available on many different form of VR platforms, such as Oculus, HTC Vive, and Microsoft Windows. Upon start-up VRChat has a very clean and easy to navigate interface for first time users to adapt to. Along with building an account so that way the user can manage their favorite chat rooms, avatars, and even add friends. Adding friends and virtually meeting up with them being the base purpose of the application.

How the application employs virtual reality is through the use of the VR headset that is in use. By using a headset such as the Oculus Quest 2 the user is able to integrate themselves into their virtual surroundings. This is done on the Oculus Quest 2 by using cameras around the edges of the headset that are picking up the dimensions of the room the player is in and translating that to the movements within the application. Along with two hand-held controllers that provide the user the ability to walk, interact, and select within the VRChat application. These functions benefiting the immersion of the user as well as the other players that the user encounters within the different chatrooms.

The avatar that the user choses to present themselves as responds in accordance with the actions of the user. For example, if the user squats down to look under a table in a virtual room the movement of the headset and controllers will shift in accordance and present to the rest of the

players as such. The motion that is being done in the real world translating to the user's virtual avatar. This virtual body language coming into play for a more personal and 'life-like' interaction between the users. Some players adding additional fluid movements to their character with movement tracking devices such as HTC Vive Trackers and Tundra Trackers. These trackers providing full-body support tracking that targets the user's feet, knees, hip, chest, and shoulders.

However, despite the VRChat name, users do not need any VR capable equipment to be able to experience the application. The application can be played on a desktop computer or laptop. While this will lack the immersive qualities that VR headsets will give this provides an excellent method for those that lack VR equipment. As well as the application itself providing options within the VR headset for those with physical disabilities. While playing with a VR headset there are core modes, one being a standing mode and the other being a sitting mode. This being beneficial for people that are wheelchair bound or lack the physical capability to stand for long periods of time. Additionally, the use of the desktop version provides additional support for those with disabilities. This support being the use of a gamepad controller rather than the traditional keyboard. Providing an easier experience for people with physical disabilities, but still retain dexterity in their hands.

VRChat is an extensive virtual reality application that is created in order to provide a 3D avatar-based chatroom. VRChat immerses the user by going off of the movement from the user's VR headset and remotes corresponding the actions to the in-game avatar. Along with providing a desktop version as well that users that do not have access to a VR headset can join into chat rooms as well. The application providing many different ways and levels in order to bring the experience to many different users internationally.

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