ABSTRACT

The learning management system is one of the most popular online platforms used by students to do online learning during this pandemic. However, the lack of interaction between students is one of the things that makes students less interested in taking online classes. Therefore, this study developed a multiplayer game based on a learning management system with the help of a client-server network model to easily synchronize data between players. Like a virtual world game, players are represented by a 3D character in the game. While in the game, players can enjoy the features that the game provides to increase interaction with other players such as chatting, free-roam in class with friends, and learning management system features such as watching videos, sending emails, and logs to record the activities of each player in the game. game. The game is desktop-based and developed with Unity.

Based on the results of the research, this multiplayer game using client-server network connectivity model so that every player in the game has data synchronization to the server safely. For the results of game testing on a laptop with a total of 15 players in the game, 7 test data were obtained, that is the average framerate usage about 30 FPS, RAM usage usage of 350 MB, and GPU usage in percentage around 99%, GPU temperature about 80 degrees celcius, average send data speed is 94 Kbps, average receive data speed 206 Kbps, and average network delay about 4 ms.

Keywords*: Client-Server Network, Learning Management System, Multiplayer, Unity, Virtual World.*