

ABSTRACT

Natural disasters, including earthquakes and fires, are a common occurrence in Indonesia. However, the public's understanding of mitigation and evacuation procedures remains limited. The objective of this project is to develop a VR based simulation game application using the Unity Game Engine. This application aims to replicate real-world conditions in the FIT Telkom University building, thereby providing an understanding of mitigation steps in practicing evacuation and self-rescue when a disaster occurs. This understanding is facilitated through virtual simulation. The application under consideration is a simulation game titled "VR Simulation On School of Applied Science Telkom University." It offers two distinct game modes, namely "QuakeEzkape" and "VireEzkape." The former simulates earthquakes, while the latter simulates fires. Both game modes are comprised of four stages, with the objective of providing an optimal player experience. The primary platform utilized is PCVR Meta Quest 2, and the application development technology encompasses Unity Assets Store, Ready Player Me, Mixamo, Canva, and Freesound. The development of this application is predicated on the MDLC method, which comprises five stages. The evaluation was executed using the UEQ method, encompassing 27 respondents for QuakeEzkape and 20 respondents for VireEzkape. The outcomes of the evaluation of both game modes exhibited an overall positive user experience. The QuakeEzkape game mode has an overall attractiveness value of 1.40, with a perspicuity value of 1.05, an efficiency value of 1.30, a dependability value of 1.05, a stimulation value of 1.31, and a novelty value of 1.14. This mode is regarded as attractive, efficient, motivating, and innovative; however, it exhibits deficiencies in terms of understanding and the consistency of the simulation. Meanwhile, the VireEzkape game mode has an attractiveness score of 1.62, perspicuity 1.39, efficiency 1.61, dependability 1.41, stimulation 1.63, and novelty 1.19, which demonstrates excellent performance in all aspects, although there is still room for improvement.

Keywords: Unity, VR, Simulation game application, MDLC, UEQ