

Realistic radiation physics was previously implemented in a fully-immersive virtual reality (VR) environment as part of a game, DoseBusters, designed to teach radiation physics and protection to the public. DoseBusters utilizes the Unity game engine for an Oculus Quest. Early versions of DoseBusters had open-source models of objects, called assets, which contained high polygon counts. This rendered the game unplayable due to the decreased frame rates. VR assets often encountered in radiation environments were also non-existent. Using the 3D modeling software Blender, a library of assets is being created to enable and enhance gameplay. The first scene, a tutorial room, is used to orient the player to game operations while teaching them about the basics of radiation as well as general lab safety. For both experiments and teaching of general safety, the simulated laboratory environment requires counter-tops, file cabinets, safety goggles, lab coats, eye-washing sinks, an automated external defibrillator, lamps, first-aid kit, stools and chairs, computers, latex gloves, white-boards, clocks, stop-watches, oscilloscopes, soldering, and electronics stations. Radiation detectors of different types, dosimeters, radioactive sources, lead pigs, and large shields are some of the radiation-specific assets essential for DoseBusters. Signage and instructional posters are also to be included. The current status of the DoseBusters library, inspired and based upon modern radiation tools and safety equipment, will be presented. Some of these assets will also have user-interactive features that can be used to increase player engagement. The DoseBusters tutorial room with its assets, when completed, should provide an engaging learning environment for teaching people about radiation detection and laboratory safety without the need for an actual physical laboratory environment. Future work is to include coding of greater radiation detector physics and radiation interactions, and the creation of higher game levels involving problems in radiation protection.