ABSTRACT

Virtual reality is a technology that allow user's to interact with computergenerated simulation of a three-dimensional virtual environment. Physics laboratory is one of the most important infrastructure which can help highschool student to understand cocepts of physics. In fact, there are many highschool that doesn't have a physics laboratory.

This virtual reality physics laboratory application is developed for Android smartphone using Unity game engine and using user's movement detection method. User's movement is detected by gyroscope and accelerometer sensors on smartphone. This application, displays physics laboratory room with laboratory equipment that is used for simple harmonic motion and projectile motion practicum.

Average score from testing application at Dayeuhkolot 1 High School grade XI is 3,09 which is in the scale appropriate and very appropriate. There is 1,25% different result from theoretical calculation and virtual reality laboratory but it still acceptable. That error is caused by 50 fps Unity frame rate. Accelerometer sensor on smartphone detected 30 cm displacement with error amount 3,71%.

Keyword : physics laboratory, user's movement detection, virtual reality