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Assignment on Virtual Reality and Physically-Based Simulation - Sheet 5

Due Date January 17 2018

Exercise 1 (Fitts's law, *7 Credits*)

In the last, optional assignment, you made yourself familiar with Unreal and the HTC Vive. The goal for this assignment is to see whether Fitt's law holds in VR.

1. Create an Unreal project where the user stands in a basic environment. In front of him, a starting sphere (*start*) of 10cm radius should be visible.
2. When the user rests one controller inside the *start* for a short amount of time, a second sphere (*target*) appears.
3. The user has to reach the *target* with the same controller that was in the *start*. If your group number is a multiple of two the user has to press the trigger button, otherwise an overlap is sufficient. The *target* will disappear then, and the user has to return to the *start*. The process repeats from point 2.

The *target*s should appear in random positions within a 50cm radius around the *start* and not overlap with it. It's size should be random in the range from 5cm to 30cm. For each iteration the following data is measured and logged:

- time between the appearance of the *target* and the press of the trigger
- distance between the *start* and *target*
- radius of the *target*

Take at least 10 measures per group member and do a scatter plot of your results. Label your x-axis with Distance/Width and your y-axis with time. Color the results with unique colors per group member.

Exercise 2 (Discussion, *3 Credits*)

a) Please discuss the validity of your experiment and your results.
b) Should the position of the target be random each time or should static list of random positions be used?

Tip

For the time taking, you can take a look at the laggy jump project.