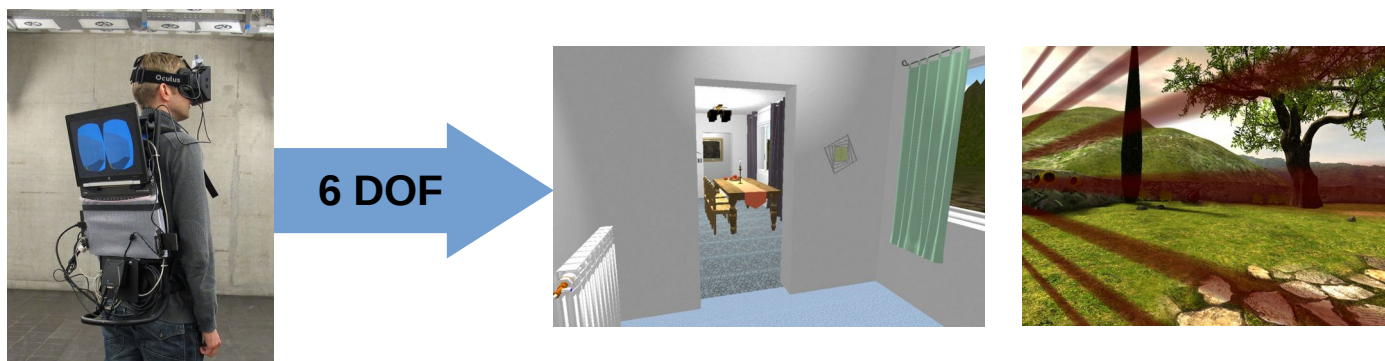

Safety and Collision Prevention for Real Walking in Virtual Environments



Background

Currently, low-cost head mounted displays and tracking devices for building virtual reality (VR) systems are becoming available on the consumer market. These devices allow for a much more immersive and natural way to navigate in digital/virtual environments – real, natural walking. However, when real walking is used to move in virtual environments, a user might collide with physical obstacles like real walls or she might trip over when the tracking system fails. Therefore, the goal of this thesis is to analyze the risks of a VR simulator and develop solutions to make the its use safer.

Task

- Determine risks and points of failure of the virtual reality simulator
- Analyze walking behavior and risk of collisions with physical walls
- Develop suitable countermeasures (e.g. “wall bars” to warn a user of physical walls)
- Final report and presentation of outcomes

Requirements

- Previous experience with a game engine (Unity3D preferred)
- Some programming experience (C#)
- Autonomous work style

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