



Power wheelchair simulator to train control and improve driving safety using VR (Virtual Reality)

Accessible Europe: ICT 4 ALL

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- ▶ 1.800 accidents per year involving wheelchair users in Austria alone
- ▶ The competent handling of a power wheelchair is essential for the security at home, in road traffic and during leisure activities
- ▶ Therefore training is required in the beginning
- ▶ **WheelSim VR facilitates people with disabilities to learn and train power wheelchair control to improve driving safety**

Problem & Solution



Target group

- ▶ People that are dependent on a power wheelchair for their mobility, either from birth on or due to an acquired disability and **who are to receive a power wheelchair or recently received one and want to train safely a competent handling**

UI is specifically designed to be operated by children and persons with learning disabilities

- ▶ Therapists and power wheelchair providers

Objectives

- ▶ Safe and effortless training in the protected environment of a VR-simulation
- ▶ VR has expanded simulations by a new dimension: no screen-following, but realistic presence in a virtual environment (immersion)
- ▶ WheelSim VR supports the power wheelchair provider's evaluation process regarding driving skills and behaviour in traffic
- ▶ All rides can be saved for later review thus supporting the approval

Driving & Learning

- ▶ Driving in a protected area
- ▶ Driving in a domestic environment (& use of a lift)
- ▶ Driving in the city (dealing with different situations with and without zebra crossings, pedestrians, traffic lights, other vehicles, etc.)



Driving & Learning

- ▶ Skill race against time on 4 different tracks
- ▶ Explanatory videos teach basic behaviour and tips for safe use of power wheelchairs (e.g. in traffic).
- ▶ All texts use easy-to-understand language.



Versions

- I. VR app at Oculus store for use with Oculus Quest VR headset
- II. Desktop version that can be used on a Windows PC with alternative mouse devices
- III. Professional desktop version in combination with Oculus VR headset which is optimized for professionals, therapists and wheelchair providers, including:
 - user-administration
 - extensive protocol functions

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