



Drive

VR

*A DIGITALLY IMMERSIVE
ENVIRONMENT FOR POWER
WHEELCHAIR ASSESSMENT
AND TRAINING.*

Stealth Products
Solutions For Life®

stealthproducts.com



What is VR?

VIRTUAL REALITY (VR) is a digitally immersive environment that simulates real life conditions. A VR Headset is typically required.

Virtual Reality + Complex Rehab

After launching our first interactive application for i-Drive, the Loonz App, we were inspired to keep pursuing new innovation and ideas. VR provides new, cutting edge power wheelchair assessment and training tools. In combination with our i-Drive line of power wheelchair driving methods, this technology can ultimately provide independent mobility for many people with disabilities.





A DIGITALLY IMMERSIVE TRAINING ENVIRONMENT

Power wheelchair assessment and training is critical to determine if a client can use a power wheelchair and which driving method is appropriate. While various strategies and tools are available, assessment and training have often been limited by lack of equipment, space, and qualified team members. VR not only brings cutting-edge technology to the process, but it expands opportunities to perform assessment and training with less space and equipment.

VR is an interactive computer-generated experience taking place within a simulated environment. While feedback is primarily visual and auditory, the user can experience a sense of movement. The user may wear goggles for a very immersive experience or may watch on a monitor.

Power wheelchair assessment and training can be challenging as the evaluation team must have access to a power wheelchair that supports the positioning and access needs of a variety of clients. A large area is also required to house equipment and provide ample space for a new driver to try a power wheelchair. VR has the potential to provide assessment and training options that allow the client to remain in their current mobility base and seating system (such as a manual wheelchair or adaptive stroller), where the person is

well-supported to optimize their physical functioning. The driving method may also be attached to the manual wheelchair as a part of the evaluation or training session.

VR has been used in rehabilitation since the early 2000s. A 2002 study concluded power wheelchair performance in the virtual environment was representative of driving ability in the real world. Recent studies have similar conclusions, suggesting VR could be used to complement training of clients requiring a power wheelchair. Clients could begin in a virtual introductory setting, such as a gym, and then move through various environments of increasing complexity. Clients could practice frequently if access to the VR system was available, as close supervision would not be required.

VR could be used in combination with more traditional power mobility assessment and training strategies to enhance results. Even if a client is successful in VR simulation of power wheelchair driving, the client should be given the opportunity to drive an actual power wheelchair in the real environment with appropriate postural support and an optimal driving method before final equipment recommendations are made.



VR SOLUTIONS

Implementing VR to assess and train new power wheelchair drivers can be accomplished from anywhere a computer is located. The VR immersive experience prepares new drivers with motion sensation, power wheelchair maneuvers, and daily routine challenges with common obstacles and goals.

By connecting the i-Drive to the VR interface (a power wheelchair not required), the client is taken to a whole new virtual place where professionals can safely monitor the new driver's progress and determine areas needing improvement. There is no need for a large open area for driver training. This can be accomplished from a comfortable static setting in the practitioner's office.

VR DRIVING SIMULATOR

The simulator is programmed to allow the client to experience driving in different conditions and locations.

Stealth Products has worked hand-in-hand with developers to create a series of levels where the driver is tested based on conditions, challenges and locations.



BASIC DRIVING TRAINING

This first level takes place in a large gymnasium with few distractions and obstacles. This level allows the driver to accommodate to the VR experience and begin simple power wheelchair movements. The driver can progress to tasks with cones, driving between lines and turning.



OUTDOOR DRIVING

This second level takes place outdoors where the driver can safely explore the environment of a quiet wooded trail. This level provides a sense of movement over varied terrain.



LIVING QUARTERS

This third level provides a more closed area experience, simulating the challenges found in a home. The driver navigates through rooms, hallways, and between furniture. The driver can also practice positioning a power wheelchair close to objects which are commonly transferred to from a wheelchair. This final level presents more challenging tasks and distractions, as well as changes in speed, lighting, spatial perception, distance, and sound.



A DIGITALLY IMMERSIVE ENVIRONMENT FOR POWER WHEELCHAIR ASSESSMENT AND TRAINING.



VR BASIC (VRCAT-1)

PC and VR Headset for someone who already owns an i-Drive Assessment Interface



VR JOYSTICK (VRCATJ-2)

PC, VR Headset, i-Drive Assessment Interface and Joystick



VR PROXIMITY (VRCATP-2)

PC, VR Headset, i-Drive Assessment Interface and Proximity Sensors



VR COMPLETE (VRCATEK-2)

PC, VR Headset, i-Drive Assessment Interface, Pro Series Head Array, Sip-n-Puff, Fiber Optic, Proximity Sensors, Joystick, Mechanical Switches and Mounts



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