



## *Driver Training Simulators for the Disabled*

SIMWORX has seen the need to safely train physically challenged drivers in the use of specialised car controls without the inherent risk of doing so on the open road. This especially applies to amputees and those with disabilities. We would like to give disabled people across Australia the opportunity to live a fuller life by learning to use their hand controls safely and increase their skills and confidence once they have their vehicles modified to their specific needs. We can fit spinner knobs, pedal hand controls of different styles and indicator extensions that would normally be fitted to their every day vehicle. The large variety of lessons we supply can place the trainee in a large range of challenging situations.

Anecdotal experiences from a driving instructor for the disabled, Mr. Loh Choon from Singapore, alerted me to the suitability of using our simulators to teach trainees in the safe use of hand controls. He was recounting some of his hair raising experiences while conducting these driving lessons. A typical day would be like this:- He had told her to brake and stop the car. Instead she accelerated!! Immediately Mr Loh Choon stepped on the brake pedal fitted to his side of the car and managed to avoid a collision with the car in front. It was a typical situation Mr Loh faced every day in his driving lessons for people with disabilities. "Imagine controlling the accelerator and brake from a hand control stick installed next to the steering wheel, instead of stepping on the pedals using your legs. It is inevitable for a beginner to make the mistake of pulling the control stick down to accelerate the car instead of pushing it to stop the car" Mr Loh said. "There are hand control devices that can be installed in the car to help them control it, but it takes time for them to get used to them".

Because we want to do everything we can to increase their independence and maintain their freedom and mobility, by using a quality simulator fitted with real car hand controls prepares them extremely well for the dramatic transition to operating a real car. Instructors appreciate it because there is no risk to their trainee or themselves and in a simulator a disabled driver's ability can be safely assessed. We love to show people that they don't necessarily need to give up driving just because of a disability, medical condition or amputation. With that in mind the SX06DTS is eminently suitable for this training discipline by fitting certified real world car controls for trainees to practice over and over using the hand controls whilst in virtual traffic situations..

The hand controls used by Simworx have been manufactured to comply with Australian standards certified (AS3954.1/ 1991 and (AS3954.2/1991). These are QUEENSLAND TRANSPORT Approved. There are basically two types that we can fit:-

### **THE PUSH/PAT HAND CONTROL**

The Push / Pat hand control is designed to apply brakes when the hand-piece is pushed towards the dash, and the accelerator is operated when the hand-piece is moved in an arc downward. With the Push / Pat control, the accelerator can be applied along with the brake. This control can also be set up for left side operation and even an upward arc of the hand-piece to apply the accelerator if required.



### **THE PUSH/PULL HAND CONTROL**

The Push / Pull type of hand control is the most popular, it utilizes the same braking operation as the Push / Pat control, (push towards the dash to apply brakes) however to accelerate, the hand piece is pulled back, towards the driver. These controls can be set up for Right side or Left side operation.

## SOFTWARE

The training program has a set of 36 lessons and all lessons are self running. They range from the basics of driving (learning to change gear, start the engine etc.) to city driving, motorway/freeway and highway driving and examination training. The lessons ensure that the trainee learns to drive safely with appropriate awareness of the changing environment around them. A virtual instructor examines the behavior of the trainee in relation to the road type, road signs, other traffic and type of task. If the trainee commits an error, computer generated verbal feedback is given about the nature of the error. Instructions are provided via graphical popups on the centre screen, and verbal instructions are also supplied. During all lessons performance is tested and stored in the student's assessment system. At the end of the lesson, a computer generated report is printed with a list of driver tasks together with the number and types of errors, fuel consumption, distance driven, etc. The report can be used by the operator for debriefing. Student data is all stored on a separate USB stick.



**Spinner Knob**

**Push/Pull Control**



### **Studio System**

- Full Cockpit with all controls
- Car Steering Wheel with spinner knob
- Accelerator & Brake pedals fitted with hand controls
- Adjustable Driver's Seat
- Auto gear shifting
- Handbrake
- Indicator stalk – optional extension
- Lights switch on stalk
- Ignition Key start
- Inertia Reel Seatbelt
- 3 channel view + 3 active mirrors
- Adjustable Seat with seatbelt
- High end PC with software package
- 3 x 46" HD LCD Screens
- 2.1 Dolby surround sound
- Laser printer for Student results
- Wireless keyboard and mouse
- Keyboard Stand

### **Portable Simulator**

- Full Cockpit with all controls
- Car Steering Wheel with spinner knob
- 2.1 Dolby Sound system
- Adjustable driver's car seat
- Indicator Stalk - optional extension
- Headlight switch on Indicator Stalk
- Brake & Accelerator pedals fitted with hand controls
- Handbrake
- Automatic Gear Shift
- 3 x 24" Primary display panels
- High End PC with software
- 3 x channels + 3 active mirrors
- Ignition Key Start
- Inertia Reel Seat belt
- Heavy duty casters for ease of portability
- Laser printer for SAS results
- Keyboard stand
- Wireless keyboard and mouse

Proudly designed and manufactured in Australia

Increasingly, contemporary driving simulators are becoming an important tool in driver training. Specific skills can be trained and critical learning situations can be presented repeatedly to the students. A good simulator offers opportunities for more efficient and faster learning of driver skills. None more so than in the area of rehabilitation of drivers with disabilities. Training is faster because the student is learning the driving tasks in a stress free environment with real world car hand controls. Most simulators focus mainly on the basic skills and their usability is limited to the first part of driver training programs. Simworx simulators, on the other hand, practice traffic participation and training of traffic insight. Most of the lessons occur in high traffic density in built up areas, on motorways and highways.

The Simworx SX06DTS Impaired Driver Training Simulator utilizing state of the art formatted software, is ideal for teaching disabled drivers to drive using hand controls. Driver training is faster in simulators compared to the traditional methods and a lot safer. For that purpose we offer complete disabled driving simulator systems.

The simulators feature real world hand driving controls and layout. Incorporating a steering wheel with a spinner knob, brake pedal and accelerator pedal hand controls, handbrake, indicator stalk, headlight-high beam stalk switch and seat belt. The trainee is seated in a real adjustable driver's seat and is surrounded with a 2.1 Dolby sound system. Three 24" or 27"HD widescreen display panels fitted to the simulator also gives the student a 180-210 degree horizontal field of view. The images are presented at a very high frame rate in HD. The operator has an integrated user interface whereby they can control assignments and assess student's progress.



Realistic Traffic Scenarios on Typical Australian Roads and Highways

The SX06DTS portable unit has fold away screens and has integrated casters underneath for ease of transport. Ideal for driver training and traffic education in the classroom also.

A total of 36 modules are included in both versions, including a module, dedicated to alcohol induced impaired driving. 3D Dolby sound as standard, results in a more realistic traffic experience. The operator has full control of lesson format from his own user interface and can introduce rain, fog and night driving modules to introduce the trainee to the challenging conditions that they would come across in the real world. The traffic system is very advanced, and results in highly realistic traffic scenarios.

Challenges such as Freeway on and off ramps, freeway on ramp merging and lane changing in high density traffic, which includes trucks, is covered extensively. Random Hazards are also introduced in the more advanced modules. Overtaking scenarios on normal roads is another element within the lesson's format.



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#### SIMWORX Driver Training Systems

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