REF   **MIRROR**

CE Class I Medical Device

User manual

Distribution mode

Available for direct download at
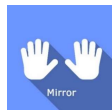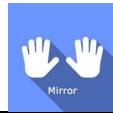
http://virtualisvr.com/espace-client/

Use under licence

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1 GENERAL INFORMATION

1.1 Description

MIRROR software is an immersive 3D simulation based on virtual reality technology, i.e. it allows a person to be immersed in an artificial digitally created world. **Mirror** is a software handling upper limb and hand disorders, deafferentation pain and CRPS.

1.2 Indications

Rehabilitation of hemiplegia, CRPS, phantom limb pain.

1.3 Contraindications

Epileptic patients, children under 15 years of age, pregnant women.

1.4 Module field of application

Module used for a new approach to Mirror Therapy. Possibility of hiding or immobilizing the motor hand during the mirror exercise. Real-time visualization.

1.5 For use by

Healthcare professionals: Physiotherapists; Occupational Therapists; Neuropsychologists; Neurologists; PRM (Physical and Rehabilitation Medicine) Doctors, etc.

Research Centers: CNRS, CHU, INSERM, etc.

1.6 Warnings and caution

Virtual Reality immersion is a powerful tool, particularly for stimuli that can induce sensory conflicts.

|	
⚠️	**WARNING** These stimulations have the potential to cause certain disorders: Vasovagal syncope, epileptic seizures, migraines, vomiting, malaise, dizziness, syncope etc… This type of rehabilitation needs to be approached progressively, particularly in Virtual Reality where the stimulation is "powerful".

The contraindications are identical: Mainly epilepsy and migraines.

ⓘ	**RECOMMENDATION** As postural reactions can be spectacular, it is VERY STRONGLY advised to place patients in a safe environment and to stay close to them throughout the session in order to anticipate any loss of balance or discomfort caused by the use of virtual reality.
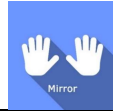
> **RECOMMENDATION**
>
> It is also recommended to increase the duration and intensity of the stimulation very gradually, after an initial short session to make sure of patients' tolerance to this type of stimulation.

Motion sickness is treated by "habituation", so you need to recreate the symptoms experienced during transport very gradually.

> **WARNING**
>
> It is absolutely essential to stop the session when the first symptoms appear, usually "sweating".

Define a working area of about 3m² to allow for risk-free movements.

Take a 10 to 15 minute break every 30 minutes of use.

It would be counterproductive to take into account the fact that some motivated patients may wish to go further. It's up to the healthcare professional to "dose" the immersion so as not to provoke neurovegetative symptoms. This type of symptom can intensify in the hour following the session.

Virtualis declines any liability for any disorders suffered by patients during or after use of its software.

The accessories required to use the software may emit radio waves that can interfere with the operation of nearby electronic devices. If you have a pacemaker or other implanted medical device, do not use the product until you have taken advice from your doctor or the manufacturer of your medical device.

⚠️ *Any serious incident should be notified in writing to qualite@virtualisvr.com*
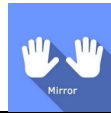
1.7   Hardware and minimum configuration requirements

Hardware required to use the system:

- VR Ready PC
- VR System: HTC VIVE, HTC VIVE Pro or compatible system
- Lighthouse bases (HTC VIVE tracking)
- XBOX 360 Controllers
- Leap Motion installed on the headset and connected to the headset

In order to install and use our virtual reality applications, we recommend a configuration equal to or higher than the system requirements:

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Technical Minimum Requirements

GPU
NVIDIA: Gen9 GTX 970 / Gen10 GTX 1060
AMD Radeon: R9 290 / RW 480 / Vega 56
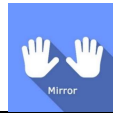
CPU
Intel: I5 4590
AMD: FX 8350 / Ryzen 1400

Operating System
Windows 7 SP1
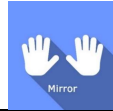
RAM
8 Go
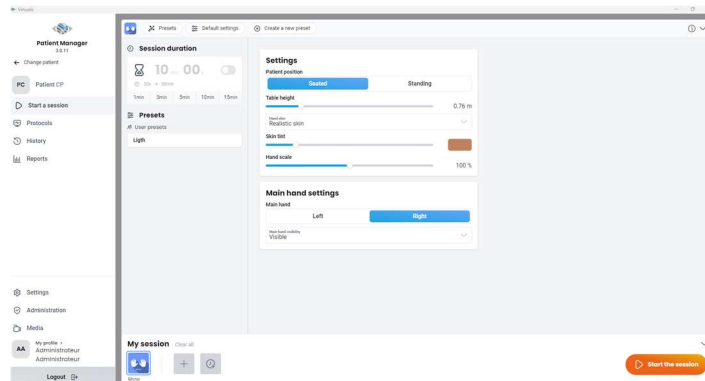
2   SOFTWARE USE

2.1   Installing the patient

Use in a seated or standing position, recenter at the start of the session using shortcut as described in

Shortcuts**Erreur ! Source du renvoi introuvable.**.

2.2 Session settings

The variable settings for this module are as follows:

Settings

Choice of patient position

The starting position can be either "standing" or "sitting" on a chair at a table.

Table height

The height of the table can be adjusted by means of a slider.

Choice of hand skin

Choice of realistic or grey skin color.

Skin tint

If a realistic hand color has been selected, the slider allows you to choose the appropriate skin tint for the patient.

Hand scale

Hand size can be adjusted using the cursor.

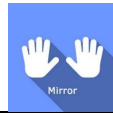**Main hand settings**

Main hand

The main hand can be either the right or left hand, depending on the patient.

Main hand visibility

The following settings are available:

- Visible: the main hand will be visible and mobile in the virtual reality space
- Frozen: used to freeze the main hand in its last position

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- Hidden: used to have the view of the "reflecting" hand only or contralateral hand only.

2.3   Session

Once the presets have been defined, the user can launch the virtual interface by selecting the "Start session" button:
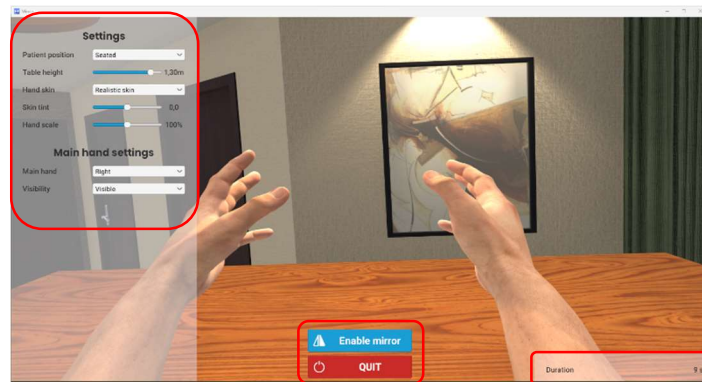
The initial parameters are displayed on the left of the screen and can be modified by the user during the session.
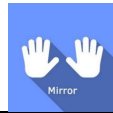
In the center of the screen, the following buttons are used to control the session:

Mirror mode can be activated or deactivated with the "Activate mirror / Deactivate mirror" button.

The "Quit" button ends the session.

In the bottom right-hand corner of the screen, the exercise duration is displayed.
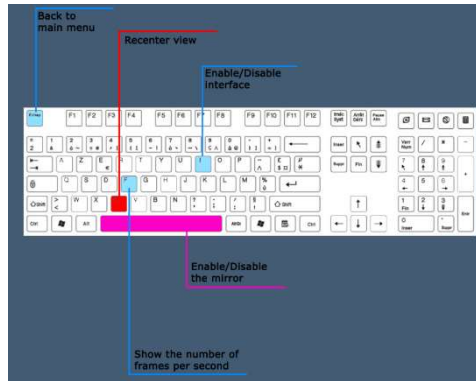
2.4   Shortcuts

The following shortcuts are available:

Keyboard:

Xbox controller:

2.5   Data processing

Data retrieval and analysis are carried out using the Patient Management software (see dedicated manual).