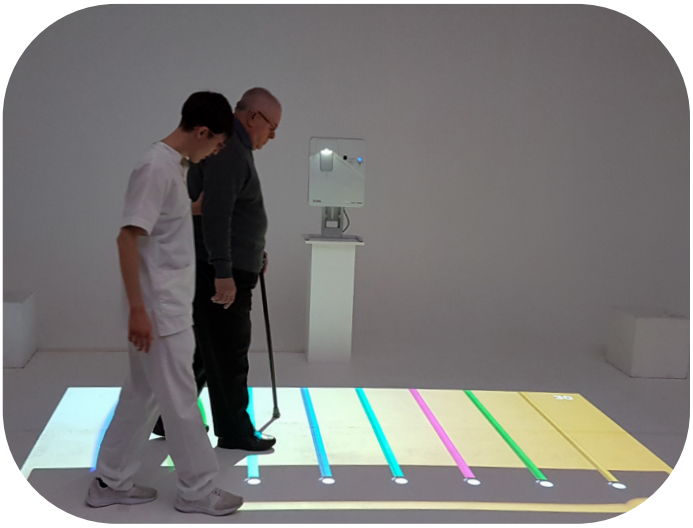
BTS Bioengineering

NIRVANA^3

Sensory and interactive room for rehabilitation

Motor and cognitive rehabilitation supported by virtual reality

NIRVANA[3]



NIRVANA is a medical device that uses immersive virtual reality techniques to motor and cognitive neuro-rehabilitation.

The system creates different kind of projections on walls or floors for the patient to interact with. Two motion analysis sesnors for each projection detect the patient's behavior and adjusts the projected environment, providing strong stimulation and rehabilitative audio or visual feedback.

NIRVANA SENSOR technical specifications*

Dimension and weigh	115mm x 40mm x 65mm, 335g
Frame rate	30fps
Depth camera	1-Megapixel Time-of-Flight (ToF) Camera
Color Camera	4K RGB with HDR - rolling shutter sensor
Motion sensor (IMU)	6DoF - includes both a 3-axis accelerometer and a 3-axix gyroscope
Power connector	The device can be powered using the provided power supply cable (USB Type-C/DC, 4.35W avg).
Data Connector	USB 3.2 Gen 1. for data transmission. If the length is not sufficient, use the supplied active extension cable, which must be powered by connecting it to the external power supply.
Operating environment	Temperature: 10-25°C Humidity: 8-90%RH (non-condensing) Indoor/Semi-Outdoor
Mounting features	Standard 1/4" mounts

NIRVANA BRAIN technical specifications*

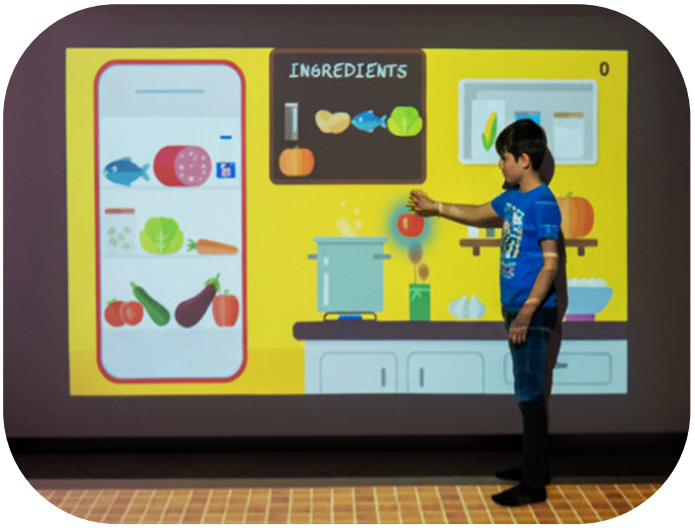
Processor	Intel® Core Ultra™ i7
Graphics	NVIDIA® GeForce RTX™
Hard disk	HDD & SSD
RAM	DDR5-SDRAM - Max:96GB (2 slot)
Data transmission technology	Intel® Gb Ethernet Intel® Wi-Fi 7 (802.11be) Bluetooth® 5.4
Connections	1x Thunderbolt™ 4 3x Displayport 2,1b 1x HDMI 2.0 6x USB 3.2
Power	On-board - 500W
NIRVANA sensors	Up to 4 sensors (2 for floor and 2 for wall projection)
Dimension and weight	27,05x24,9x12,6cm - 6,4 Kg

*Technical features and images of third-party components shown in this data sheet may differ slightly from what is supplied with the system. However, the minimum specifications required for proper system operation will always be guaranteed.

Videoprojectors minimum requirements

	WALL PROJECTION	FLOOR PROJECTION
Lens	Ultra-Short Throw	Short Throw
Brightness	> 3200 ANSI Lumens	> 3200 ANSI Lumens
Resolution	Full HD (1.920 x 1.080 pixel)	Full HD (1.920 x 1.080 pixel)
Contrast ratio	5.000:1	5.000:1
Connection	HDMI input	HDMI input
Speakers	>16 Watt	>16 Watt

- **Comprehensive Platform:** Supports both Motor and Cognitive Rehabilitation.
- **Universal Accessibility:** Web-based interface allows multi-user access via PC, Tablet, and Smartphone.
- **Maximum Customization:** Fully customizable clinical exercises tailored for each patient.
- **Unparalleled Accuracy:** Easy-to-perform calibration delivers exceptional precision.
- **Advanced Immersive Experience:** Great responsiveness for a highly engaging user experience.
- **Multi-Blob Tracking**: Multi-point function tracks up to 4 points simultaneously.
- **Specific Limb Recognition**: Body Tracking function ensures accurate right and left limb recognition.



The core of NIRVANA is the exercise database, including more than 50 exercises grouped in 6 categories with different targets, all developped in collaboration with clinicians.

Each exercise can be performed on wall or floor projection and involves specific body segments (head/neck, upper limbs, trunk and lower limbs).

They can be customized in real time and adapted to the specific patient requirments.

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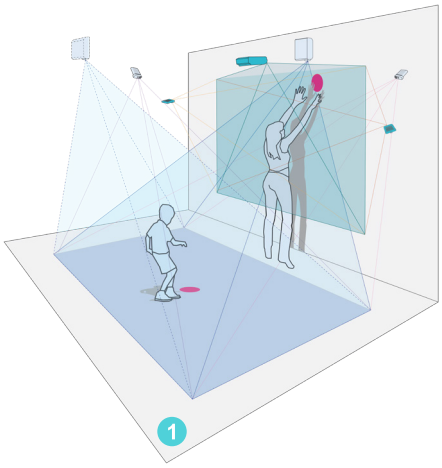

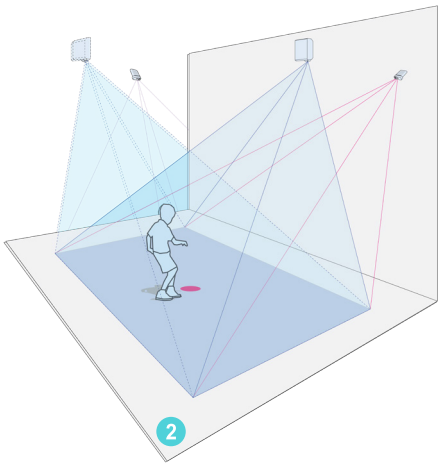

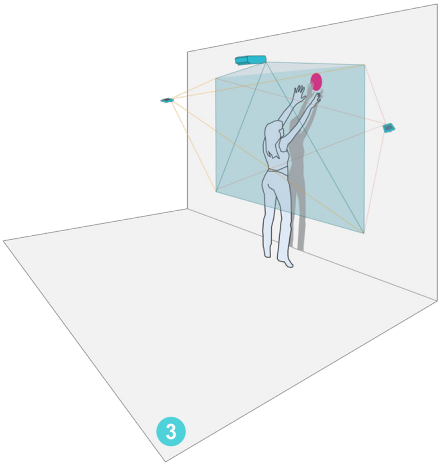

Components	1 - DOUBLE-SENSOR CONFIGURATION	2 - FLOOR CONFIGURATION	3 - WALL CONFIGURATION
NIRVANA SENSOR	n°4	n°2	n°2
Short-throw Video Projector **	up to 2	up to 2	-
Ultra-short-throw Video Projector	✓	-	✓
Nirvana Brain	✓	✓	✓
Webcam	✓	✓	✓
USB 3.0 Active Extension Cable	n°4	n°2	n°2
Sensor Support	n°4	n°2	n°2
Wi-Fi router	✓	✓	✓
User Console	✓	✓	✓
PTZ color camera	✓	✓	✓
BT package***	✓	✓	✓

** For floor projection, it is recommended to use two projectors in a cluster configuration. The resulting cross-projection eliminates subject shadows and ensures continuous visibility of the exercise scene.
*** Requires 2 sensor for each projection

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