

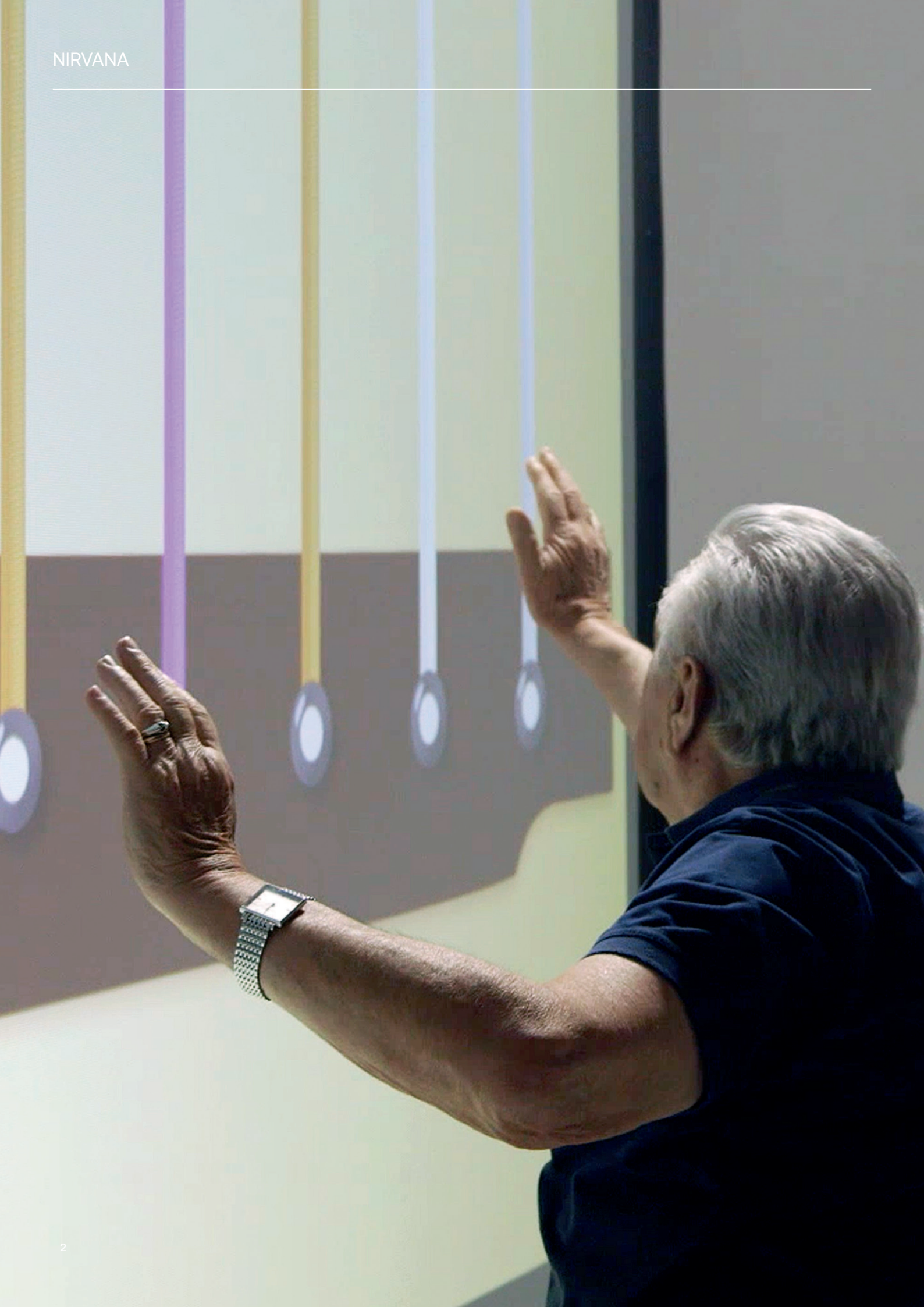


BTS Bioengineering



NIRVANA

Sensory and interactive room
for rehabilitation





Motor and cognitive rehabilitation supported by virtual reality

NIRVANA is a medical device that uses immersive virtual reality techniques to motor and cognitive neuro-rehabilitation for patients of any age (children, adults, elderly) with neurological disorders.

NIRVANA creates a 'sensory room' where the patient is encouraged to participate

in an immersive, stimulating experience in various realistic scenarios. It allows you to make the patient's rehabilitation process more effective by involving the subject in a stimulating experience.

The exercises can be customized in real time and adapted to the specific patient's abilities.

Immersive experience and total freedom of movement



Motor therapy



Cognitive therapy



Customizable clinical
exercises



Easy-to-read
report



Accessible from pc,
tablet, smartphone



Multi-user
platform



Web-based
interface



Cloud database



GDPR compliant



The system projects immersive scenarios onto the wall or floor, where patients interact with specific sensory stimuli. A motion analysis device detects the patient's movements and dynamically adjusts the projected environment, delivering real-time audiovisual feedback.

To enhance the immersive experience, the scenario is extended onto the surface not directly involved in the exercise. This full-body immersion ensures a highly personalized and motivating rehabilitation experience.

Furthermore, for the floor surface, it is possible to use two projectors in a cluster to create a cross-projection effect that virtually eliminates subject shadows and ensures continuous, clear visibility of the exercise scene.

Motor and Cognitive therapy

Available exercise categories:



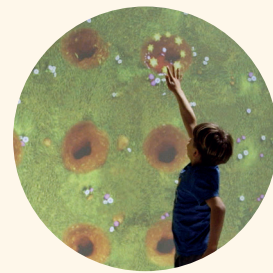
Sprites

Perform specific movements aimed at reaching, touching or grabbing a series of objects.



Follow-me

Follow one or few objects that are moving on the projection plane exerting online motor control.



Hunt

Reach various elements that appear randomly for a limited time.



Motion

Cover the largest portion of the projection or, on the contrary, try to keep a fixed position.



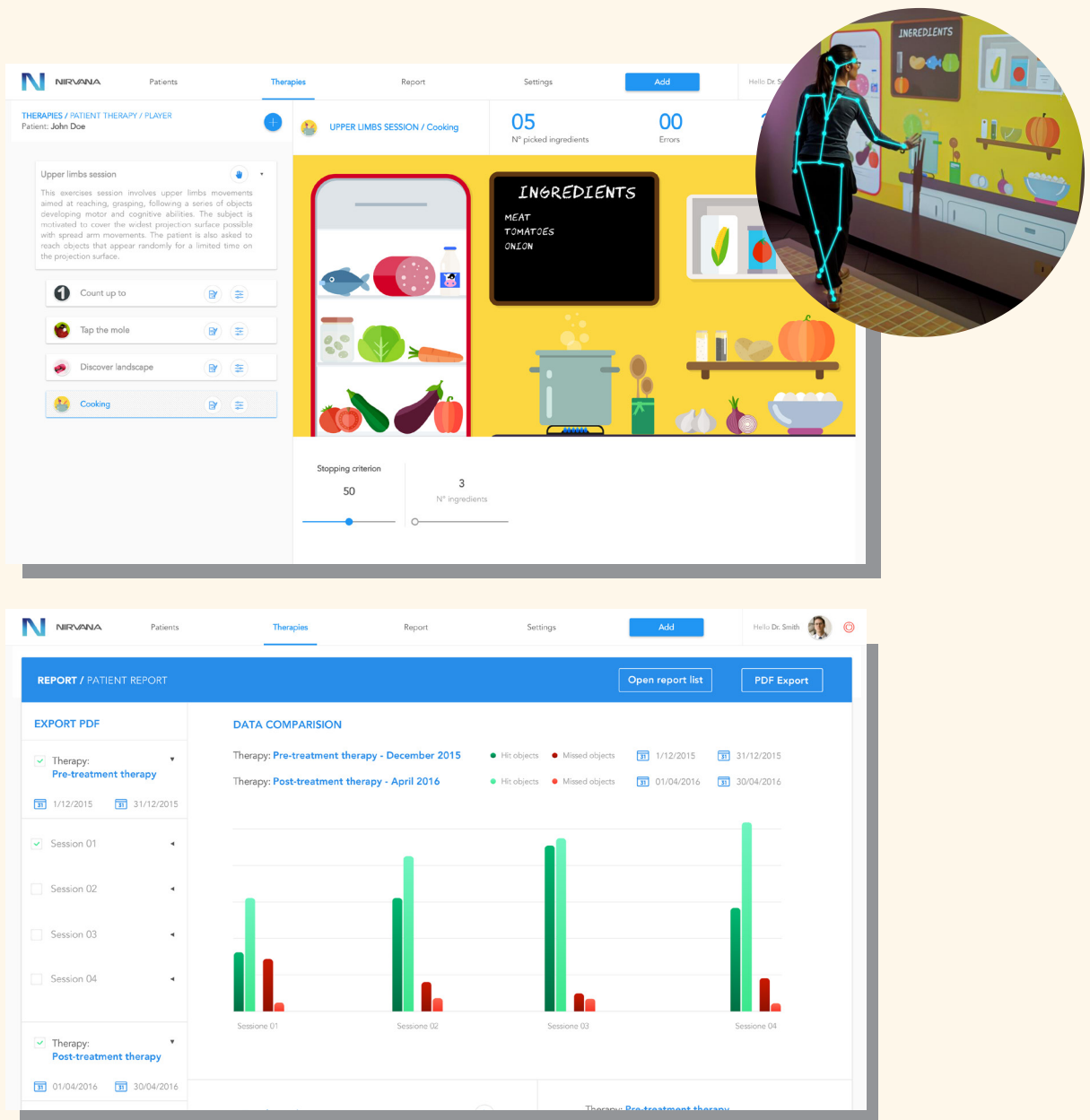
Grasping

Simulate the grasping of an object and the following positioning to a target point in a scenario that recreates everyday situations.



Games

Play with scenarios and effects that can be used freely.



NIRVANA's core consists of an extensive library of exercises across six categories, built in partnership with medical experts.

The system supports whole-body rehabilitation—covering the head, neck, trunk, and limbs—alongside cognitive therapy.

The exercises can be modified any time and adapted to the patient's specific needs.

Leveraging advanced body-tracking technology, NIRVANA precisely monitors the user's left and right hands and feet during each exercise. This enables the extraction of key biomechanical data, providing valuable insights into performance and technique.

The system quantifies significant progress indicators in real-time and automatically generates intuitive, easy-to-read reports.





Operational benefits

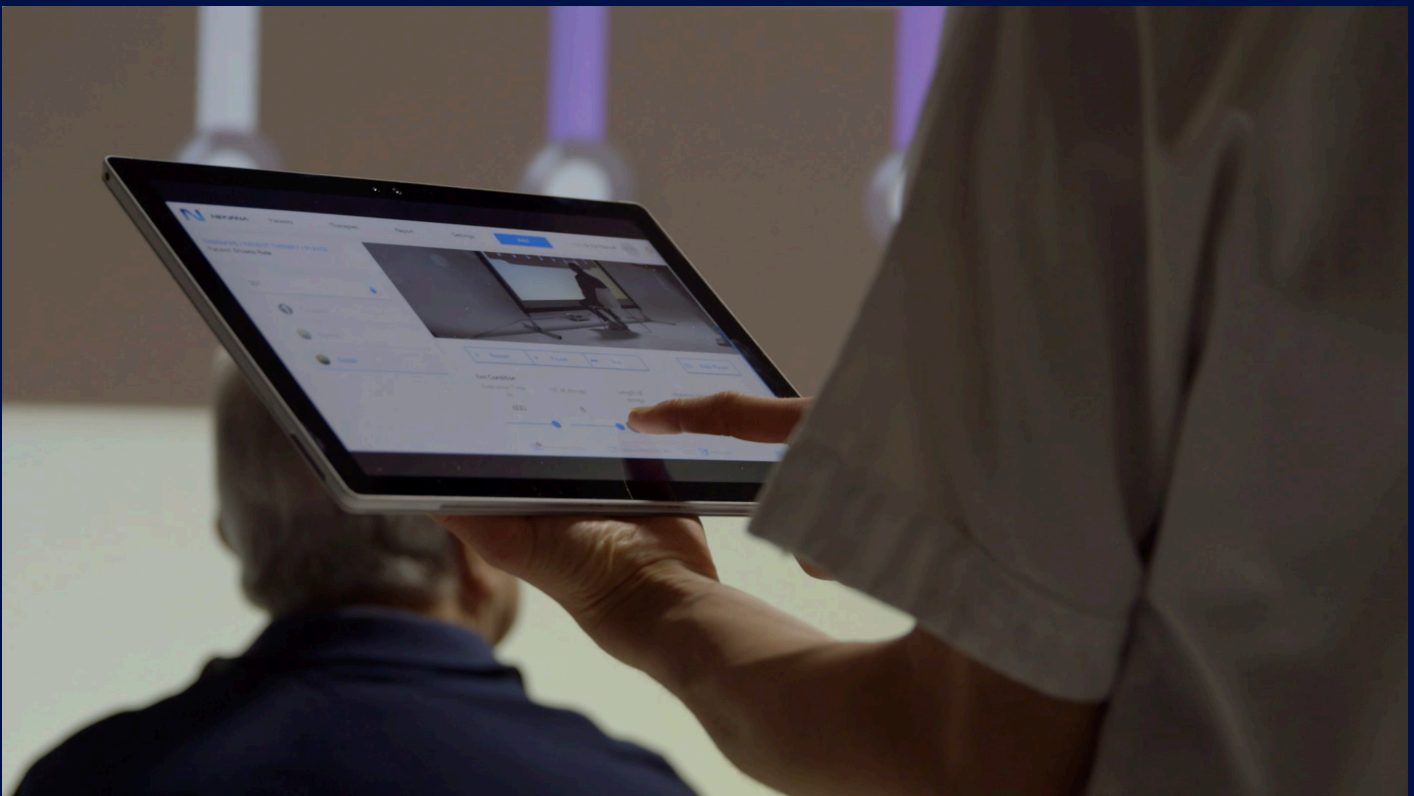
With NIRVANA the patient becomes the active protagonist of their treatment: a more motivating and engaging therapy appears to be more effective, providing better results in less time.

The patient is free to move spontaneously without any hindrance of glasses, gloves and sensors. Personal aids such as walker, crutches and wheelchair can also be used.

This will help you motivate the patient and encourage him or her to engage in the customized rehabilitation program, making the patient pro-active in performing the task.

This approach allows the patient to test his or her performance success and increase their autonomy level while still maintaining the therapist's constant presence.

IN PRESENCE CUSTOMIZABLE EXERCISES



System plus



Validated clinical exercises

The system includes a wide range of pre-configured exercises developed in collaboration with clinical experts recognized by the International Scientific Community. Each exercise can be edited in real time and adapted to the specific patient's abilities based on parameters such as difficulty level, execution speed, and target areas.



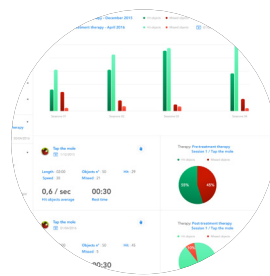
Web-based software

The web-based software allows you to manage patients, organize their therapy, and record and visualize the progress achieved. The rehabilitation sessions can also be created or examined remotely. Furthermore, the software can be used by several users by creating multiple accounts (physicians, physical therapist, occupational therapist).



Flexible Therapeutic Space

NIRVANA does not require a permanently dedicated space. Sensors and projectors are installed at higher levels and do not occupy operative space, allowing existing rehabilitation areas to be used. It is only necessary to ensure the projection area is clear of obstacles during the therapy session; upon completion, the space immediately and fully becomes available for other activities.



Immediate report

For each patient, the history of the results of the rehabilitative program done with NIRVANA is always available, in order to highlight the progress of the subject and the benefits obtained with the treatment. You also have the ability to record a video during the execution of each exercise to subsequently monitor the patient's performance.



Components and add-ons

COMPONENTS	DOUBLE CONFIGURATION	FLOOR CONFIGURATION	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*	✓	✓	✓
PTZ Color Camera (optional)	✓	✓	✓
USB Connection Cable	n°4	n°2	n°2
Sensor Support	n°4	n°2	n°2
User Console (optional)	✓	✓	✓
Wi-Fi Router	✓	✓	✓

SOFTWARE

Web-based software license	n°1	n°1	n°1
Sensor licenses	n°4	n°2	n°2
Exercise library	✓	✓	✓
BT Package*	✓	✓	✓

*Requires 2 sensor for each projection

NIRVANA BRAIN



MOTION SENSOR





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