VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

BALANCE BOARD BASE PACK

2020.1

Hardware requirements 3

What is needed? 3

Therapeutic tasks database 5

Movement time 5

Movement precision 7

Functional movements 17

Divided attention 29

Memory 31

Problem solving 33

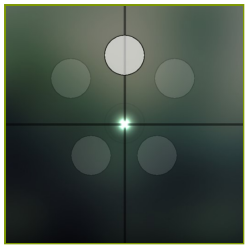
Specialized 35

WHAT IS NEEDED?

HARDWARE REQUIREMENTS

Please make sure the PC where you want this module to be active have VAST.Rehab Patient Panel installed and that following hardware requirements are met:

- Windows 10
- INTEL i5 processor
- 8GB RAM
- nVidia GeForce 1050 GTX graphic card



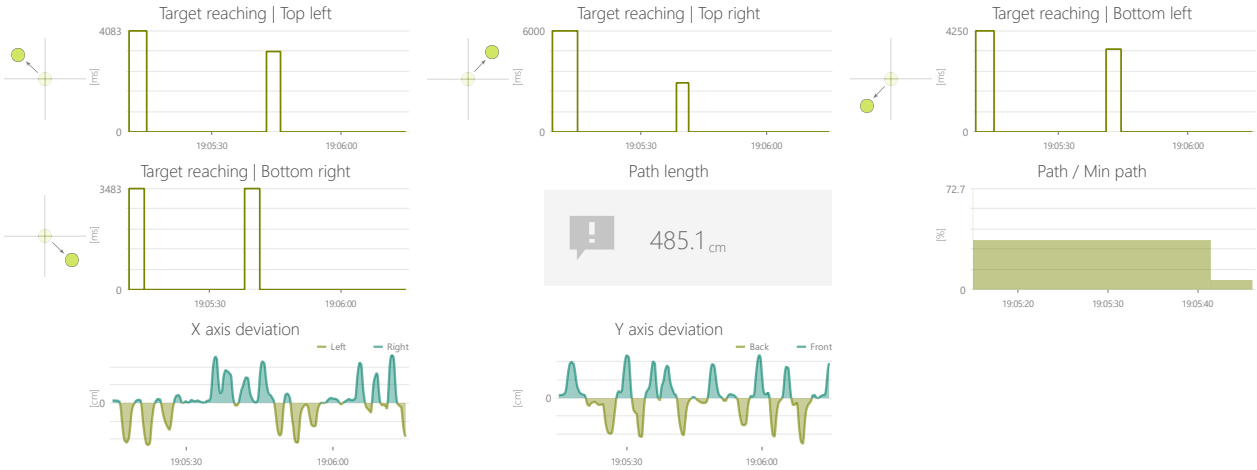
MOVEMENT TIME

DYNAMIC TEST

Measure time taken to carry out a movement of a limb or other part of the body. It is measured from rest to target position.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Range
- Show path
- Repetitions

OBJECTIVES

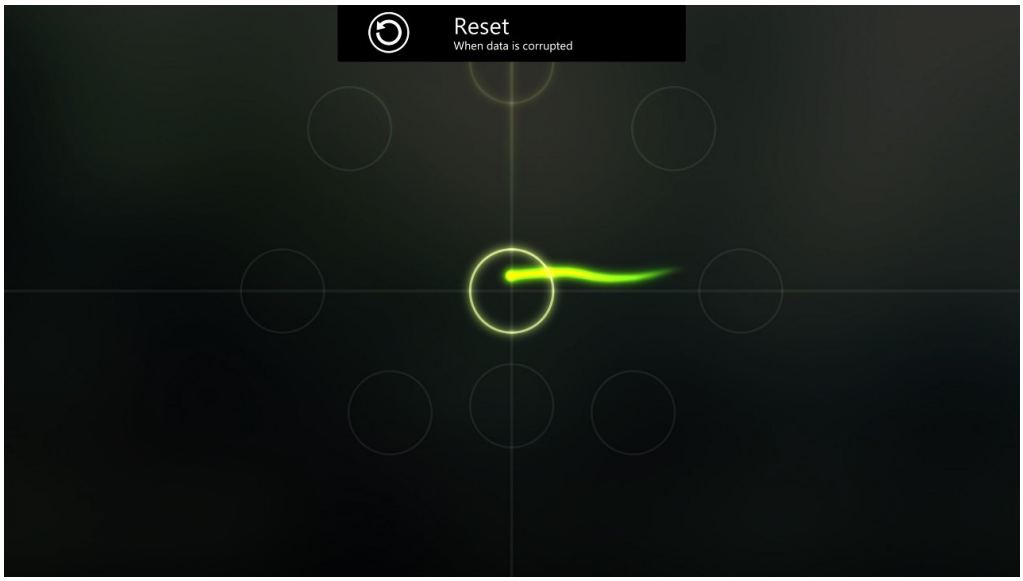
- Test the limits of balance and equilibrium
- Dynamics of planned movements

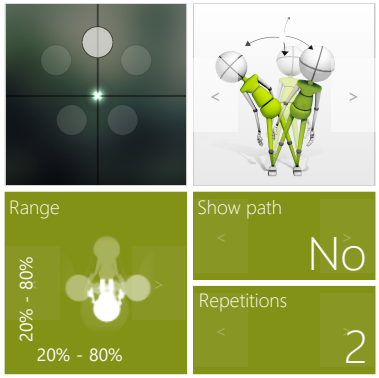
INSTRUCTION FOR PATIENT

Move the dot to the highlighted target and hold it for a moment. Next target will be highlighted.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SAMPLE SETTINGS





VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

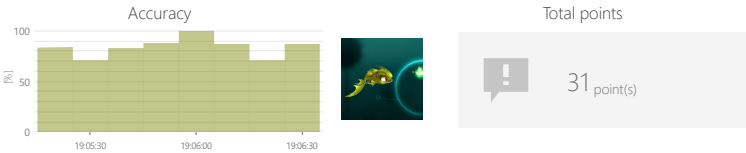
MOVEMENT PRECISION

FISH

Measure and train individual's skills to perform specific movement patterns with predefined speed and range.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Task duration
- Movement mode
- Range
- Route shape
- Speed of objects

OBJECTIVES

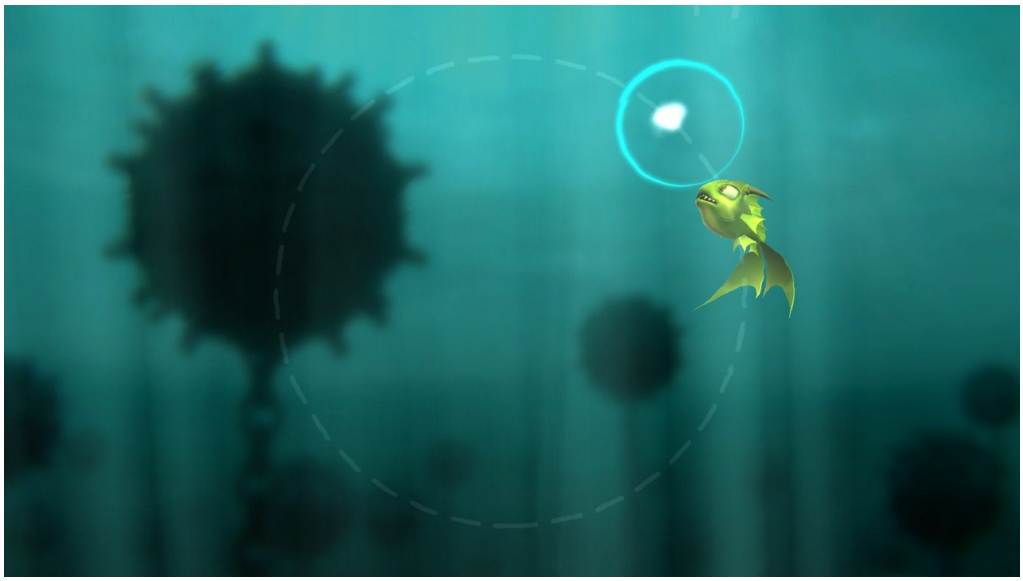
- 3D space movements reproduction
- Planned movements
- Muscle strengthening
- Movement precision
- Visual motor coordination

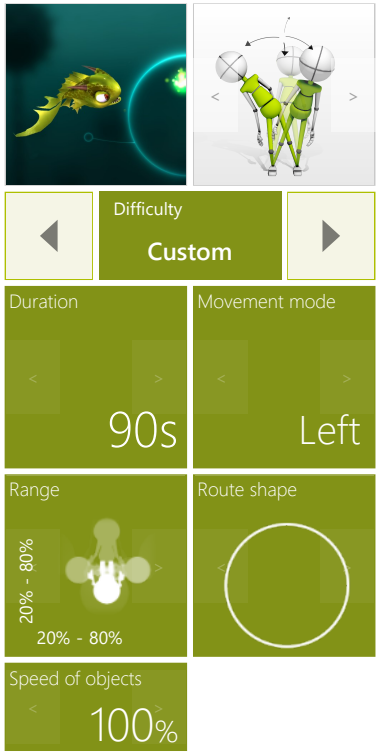
INSTRUCTION FOR PATIENT

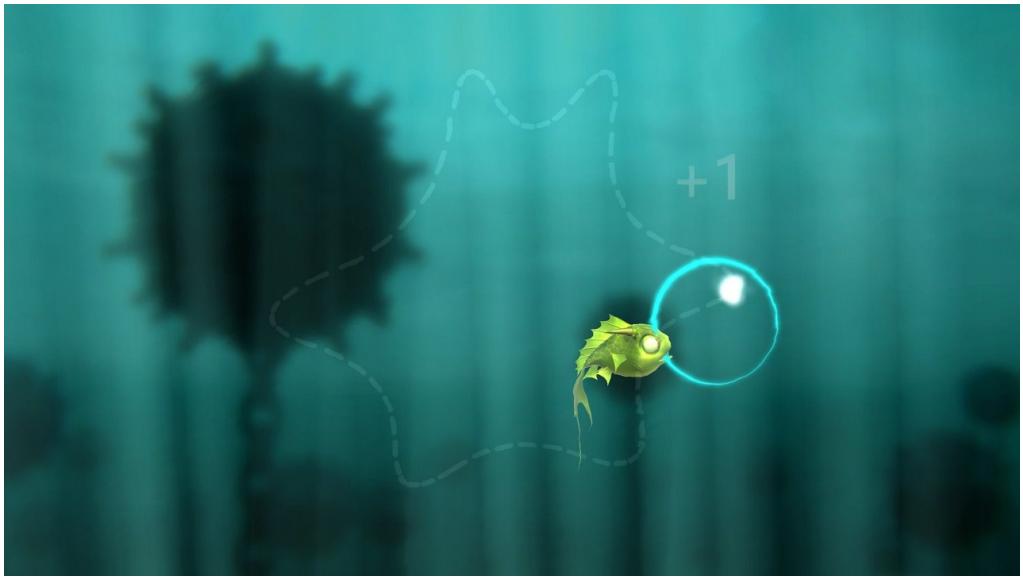
Move the blue circle to protect the sparks source from the fish. When the sparks source is inside the circle it is safe

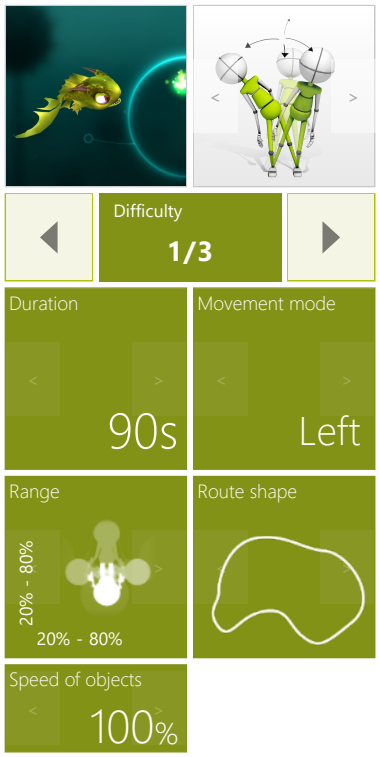
VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SAMPLE SETTINGS

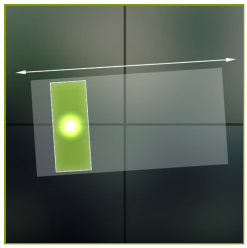








VAST.Rehab
REHABILITATION IN VIRTUAL REALITY



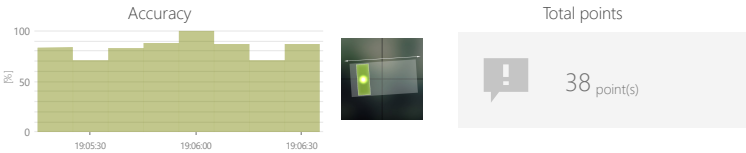
MOVEMENT PRECISION

PENDULUM

Measure and train individual's skills to perform specific movement patterns with predefined speed and range.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Task duration
- Range
- Show path
- Period
- Rotation
- Pendulum height
- Pendulum width

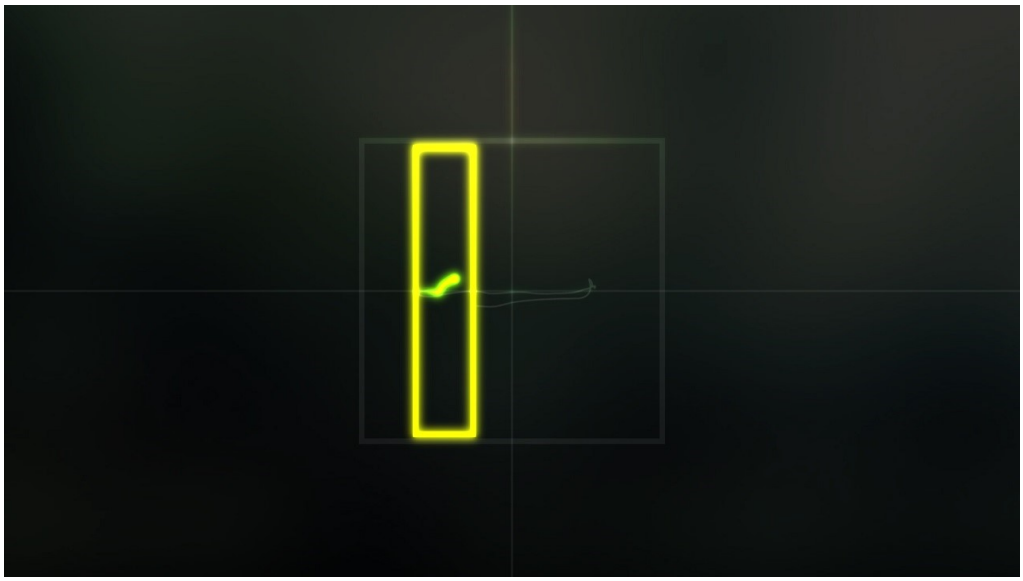
OBJECTIVES

- 3D space movements reproduction
- Balance and equilibrium training
- Rhythmicity
- Activity in a given rhythm
- Movement precision

INSTRUCTION FOR PATIENT

Try to synchronize yourself with the rectangle movements. Do your best to stay within the rectangle

SAMPLE SETTINGS



VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

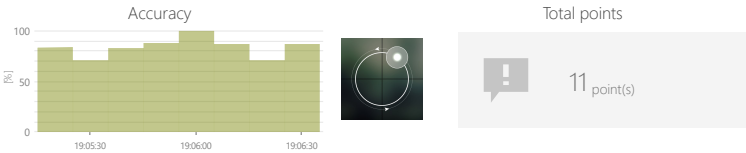
MOVEMENT PRECISION

TRACKING

Measure and train individual's skills to perform specific movement patterns with predefined speed and range.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Task duration
- Range
- Inverse direction
- Show path
- Period
- Radius
- Target radius

OBJECTIVES

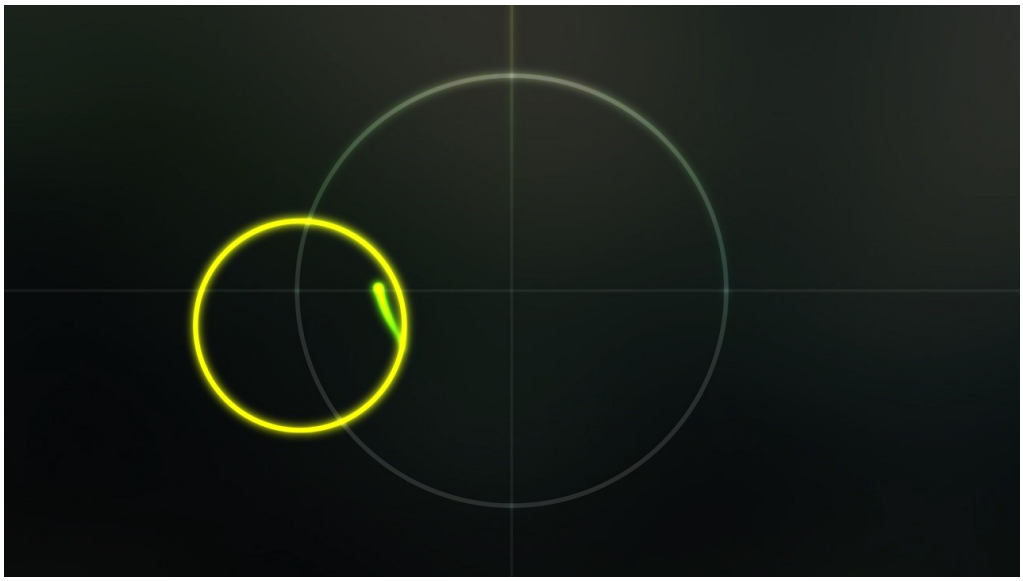
- 3D space movements reproduction
- Balance and equilibrium training
- Test the limits of balance and equilibrium

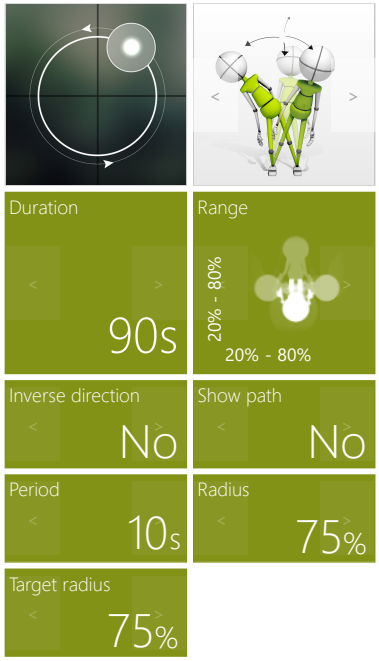
INSTRUCTION FOR PATIENT

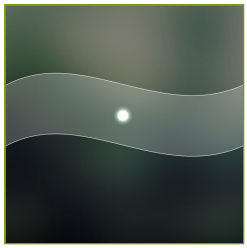
Try to synchronize yourself with the circle movements. Do your best to stay within the circle

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SAMPLE SETTINGS





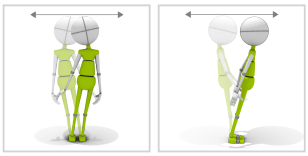


MOVEMENT PRECISION

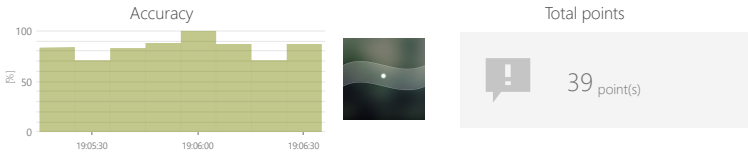
GRAPH

Measure and train individual's skills to perform specific movement patterns with predefined speed and range.

CONTROL MODES



RESULTS



ADJUSTMENTS

- Graph shape (sinus or square, amplitude, border, etc.)
- Task duration
- Range

OBJECTIVES

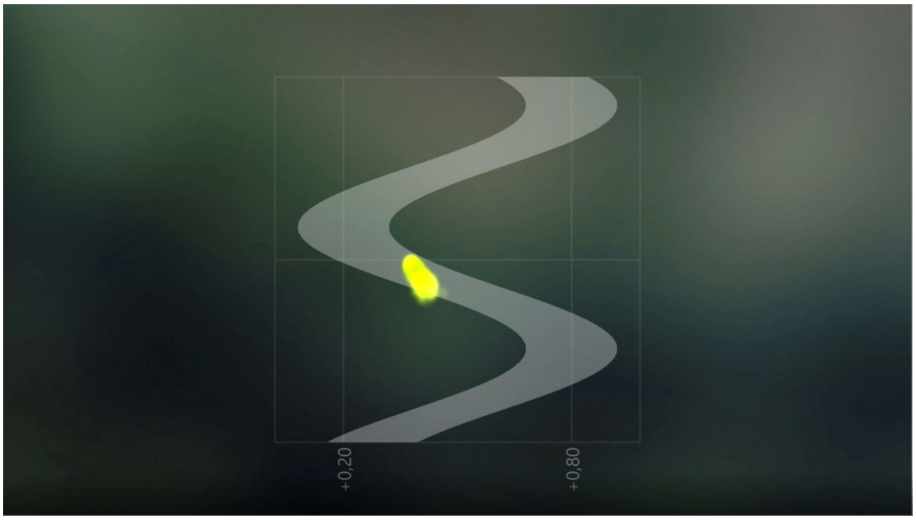
- Movement precision
- Activity in a given rhythm
- Repetitive movements
- Hands raising

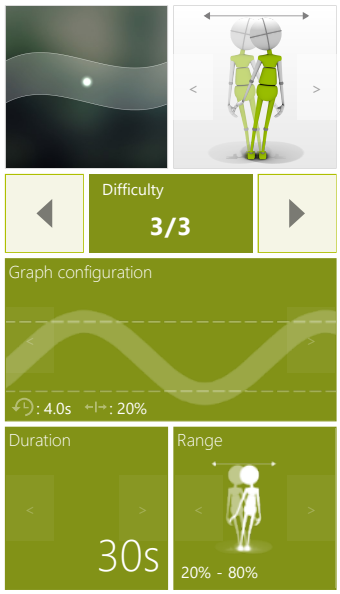
INSTRUCTION FOR PATIENT

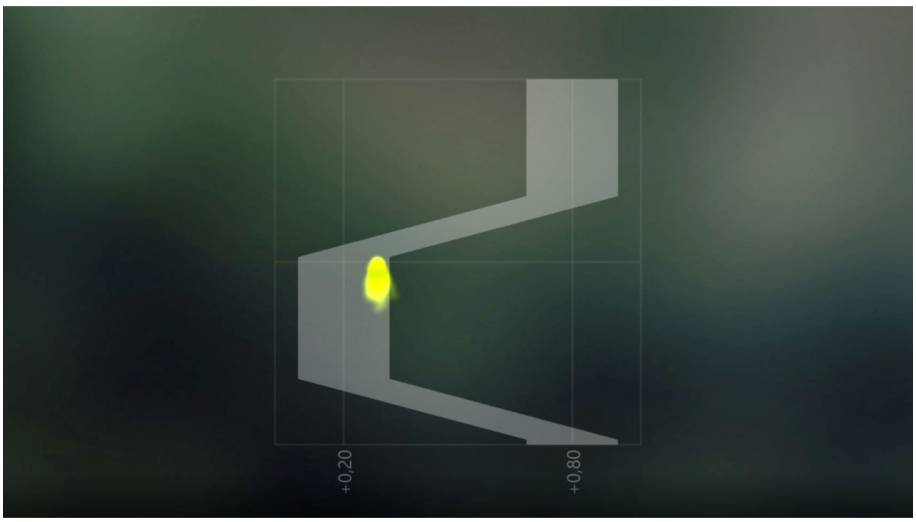
Try to stay within the borders

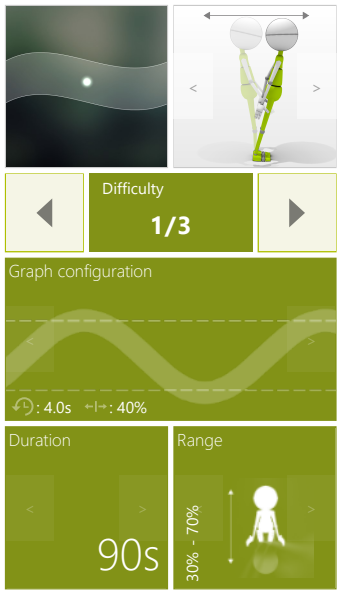
VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

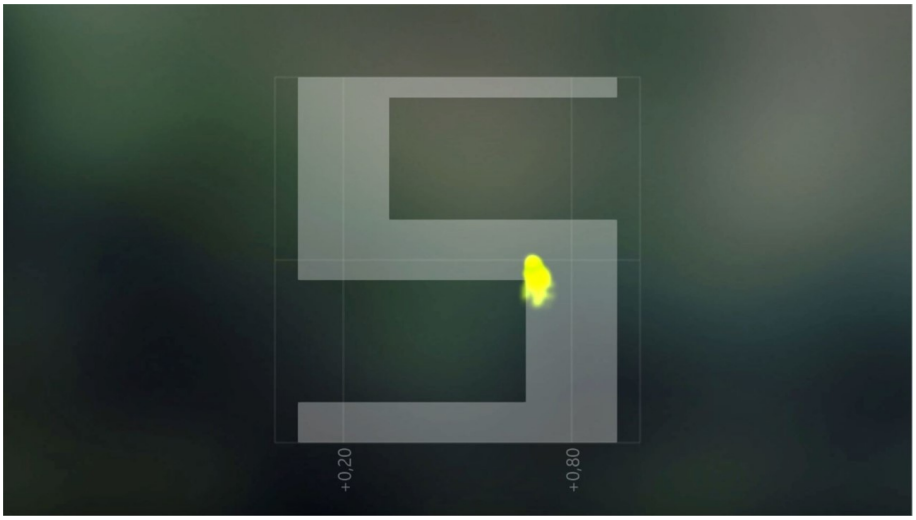
SAMPLE SETTINGS

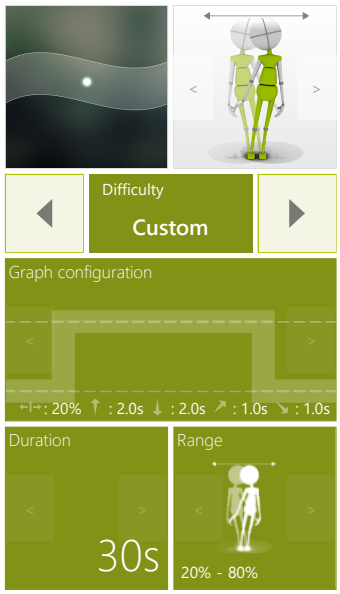












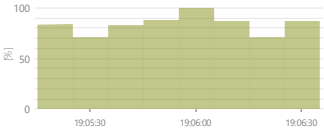
MOVEMENT PRECISION

UMBRELLA

Measure and train individual's skills to perform specific movement patterns with predefined speed and range.

CONTROL MODES

RESULTS



Total points

27 point(s)

ADJUSTMENTS

- Task duration
- Path
- Range
- Umbrella size

OBJECTIVES

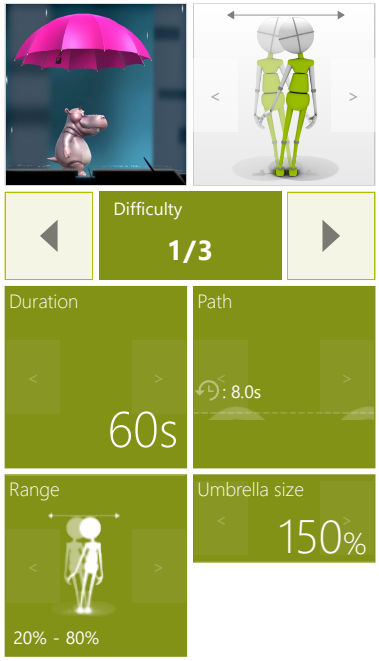
- Movement precision
- Visual motor coordination

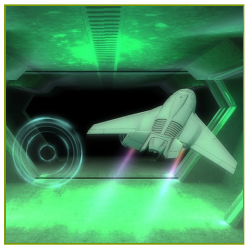
INSTRUCTION FOR PATIENT

Don't let the hippo get wet - keep the umbrella above him!

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SAMPLE SETTINGS





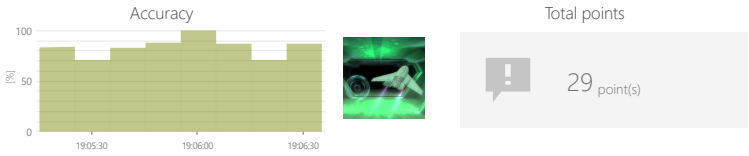
FUNCTIONAL MOVEMENTS

AIRPLANE

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Task duration
- Range
- Player speed

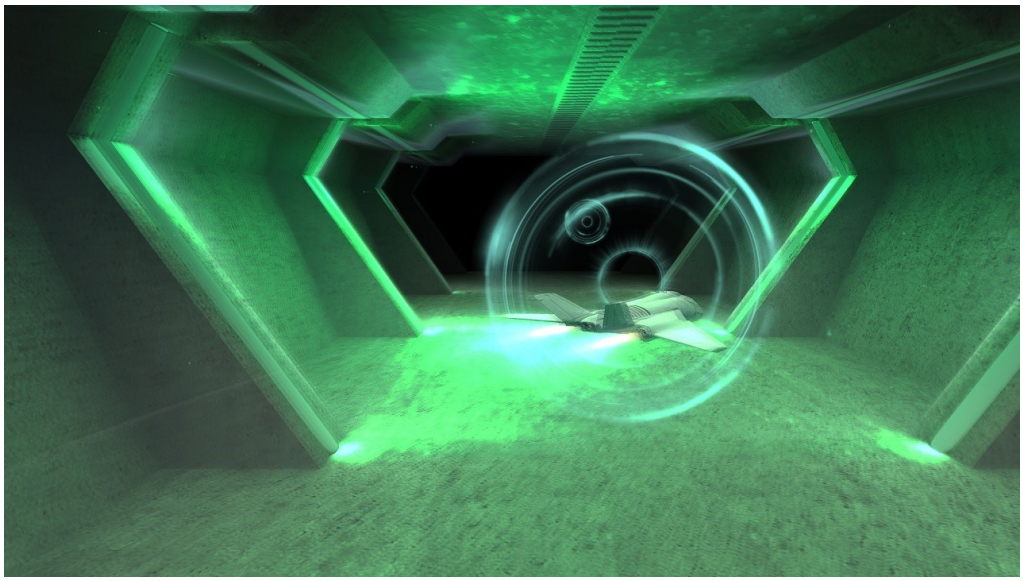
OBJECTIVES

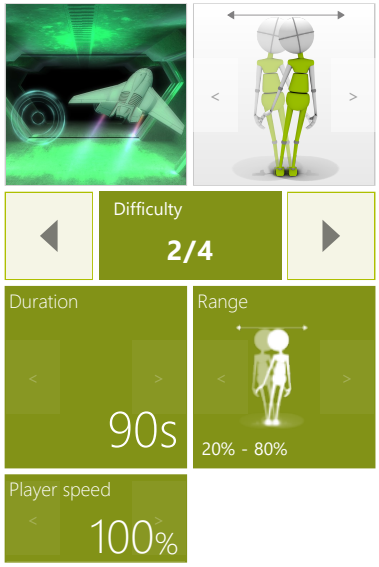
- Focusing
- Perceptivity
- Movement precision
- Predicting the trajectory of objects in 3D space
- Balance and equilibrium training

INSTRUCTION FOR PATIENT

Make the airplane fly through the circles. The closer to the center it flies the more points you get

SAMPLE SETTINGS





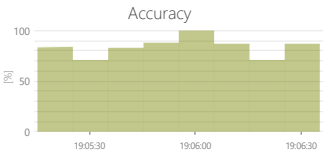
FUNCTIONAL MOVEMENTS

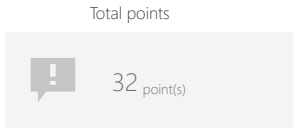
STONES

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS





ADJUSTMENTS

- Task duration
- Range
- Player speed

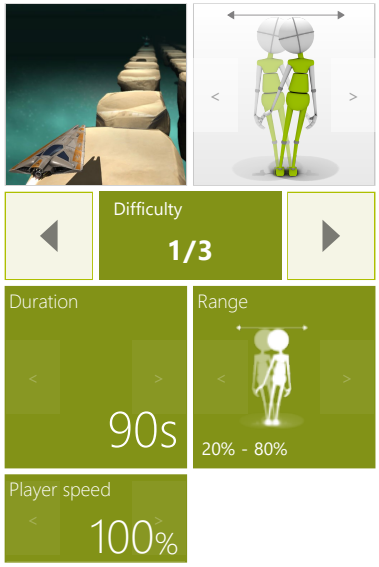
OBJECTIVES

- Perceptivity
- Dynamics of planned movements
- Reaction to the positive visual stimuli
- Response to negative visual stimuli

INSTRUCTION FOR PATIENT

Make the the spaceship collect the colorful creatures and avoid the rocks

SAMPLE SETTINGS



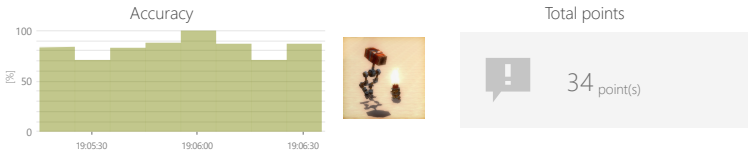
FUNCTIONAL MOVEMENTS

HAMMER

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Positions to have targets on
- Task duration
- Range
- Time to react
- Reticle size

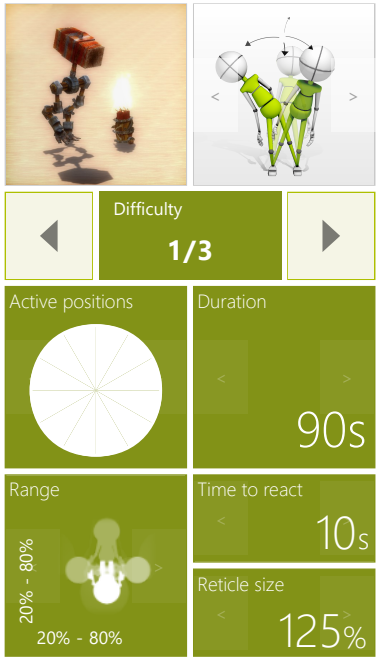
OBJECTIVES

- Planning and Strategy
- Sideways walking
- Balance and equilibrium training
- Speed of decision making

INSTRUCTION FOR PATIENT

Hit the burning barrels as quickly as you can. Then return to the center

SAMPLE SETTINGS



FUNCTIONAL MOVEMENTS

RUNAWAY

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS

ADJUSTMENTS

- Task duration
- Range
- Number of enemies
- Enemies speed

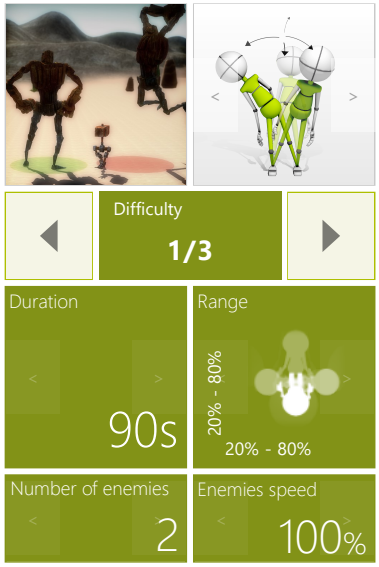
OBJECTIVES

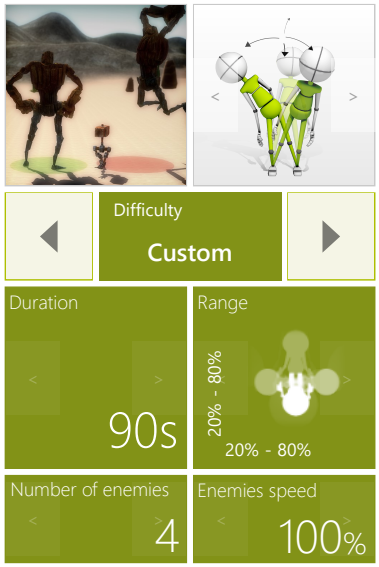
- Predicting the trajectory of objects in 3D space
- Response to negative visual stimuli
- Focusing
- Perceptivity
- Balance and equilibrium training

INSTRUCTION FOR PATIENT

Keep away from the big robots

SAMPLE SETTINGS



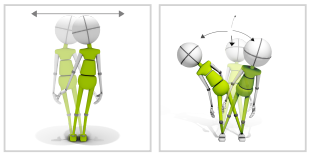


FUNCTIONAL MOVEMENTS

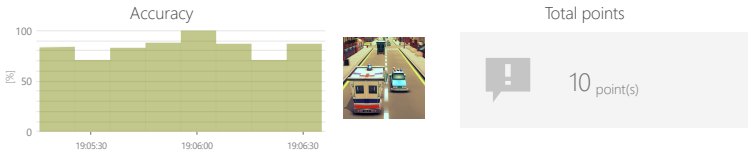
AMBULANCE

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES



RESULTS



ADJUSTMENTS

- Task duration
- Range
- Distance between cars
- Player speed

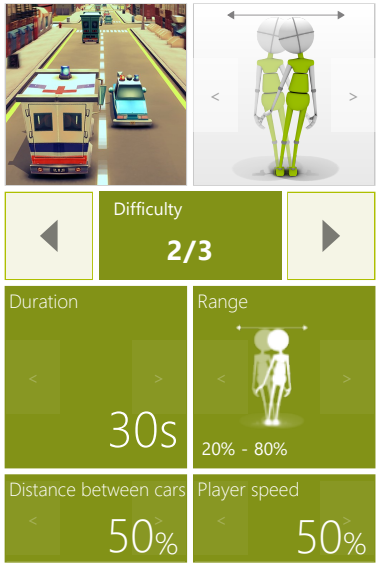
OBJECTIVES

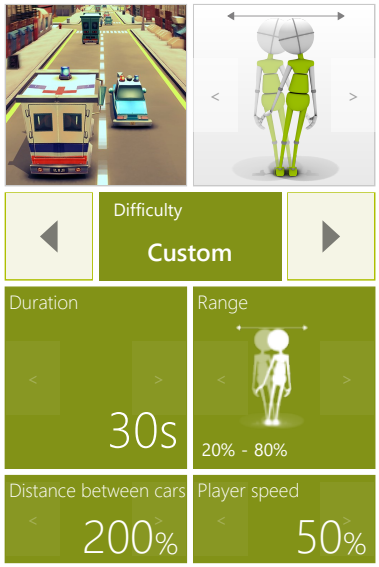
- Balance and equilibrium training
- Dynamics of planned movements
- Focusing
- Speed of decision making
- Visual motor coordination

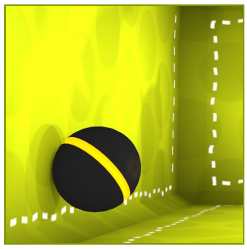
INSTRUCTION FOR PATIENT

Go as fast as you can and avoid hitting other cars

SAMPLE SETTINGS







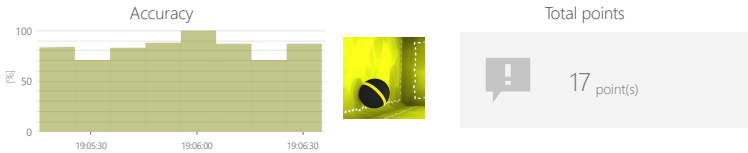
FUNCTIONAL MOVEMENTS

ARCANOID

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Task duration
- Range
- Reticle size
- Speed of objects

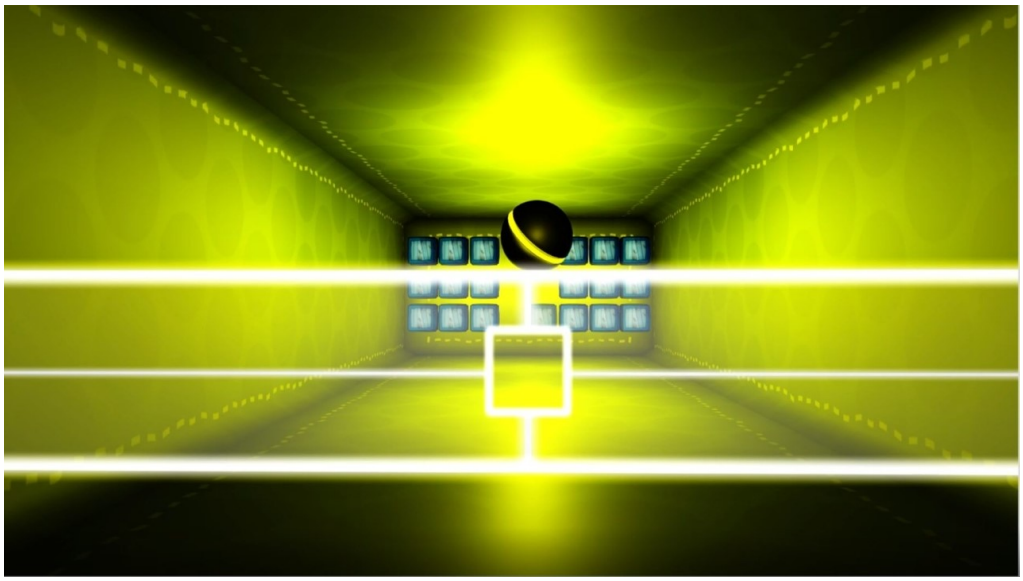
OBJECTIVES

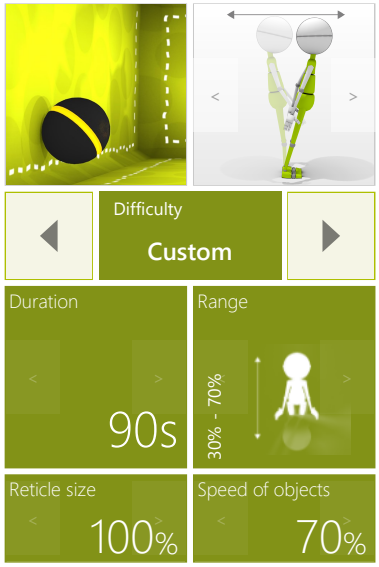
- Dynamics of planned movements
- Predicting the trajectory of objects in 3D space
- Visual motor coordination

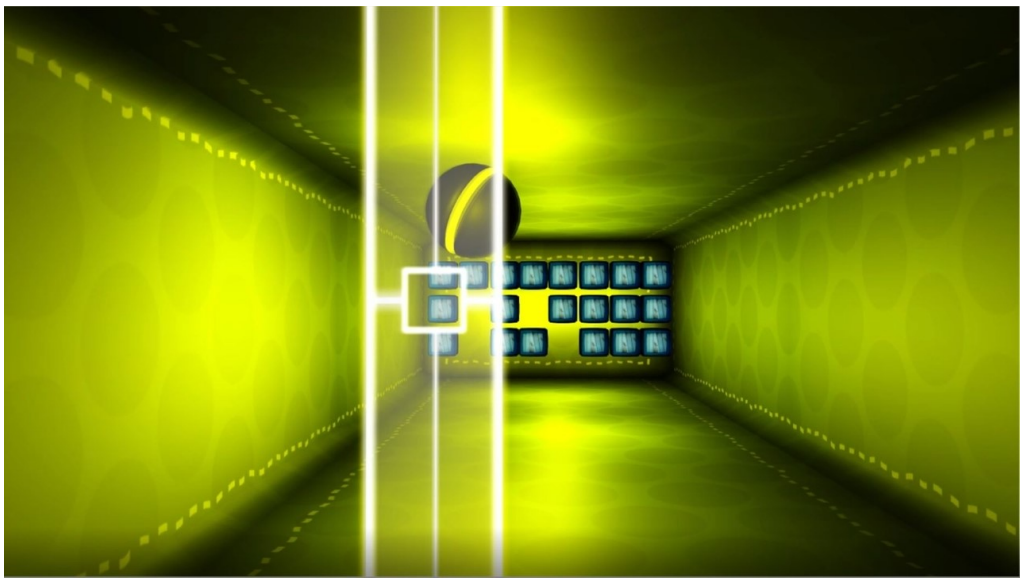
INSTRUCTION FOR PATIENT

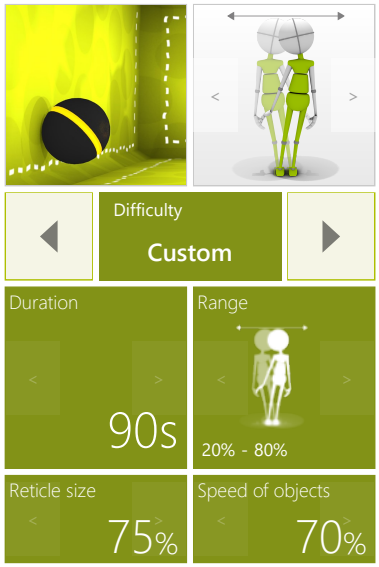
Destroy as many boxes as you can

SAMPLE SETTINGS

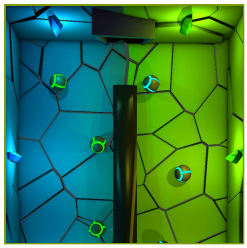








VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

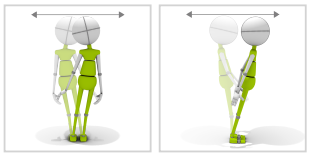


DIVIDED ATTENTION

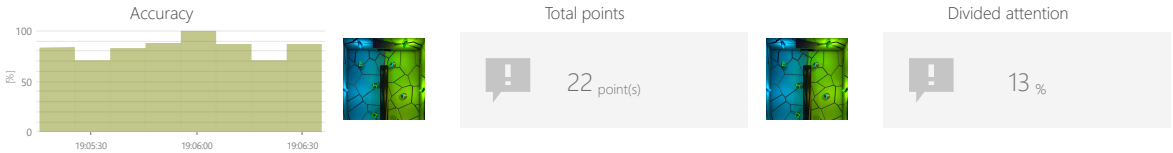
SORTER

Measure and train individual's skills to successfully execute more than one action at a time, while paying attention to two or more channels of information.

CONTROL MODES



RESULTS



ADJUSTMENTS

- Task duration
- Range
- Number of objects
- Gap size
- Speed of objects

OBJECTIVES

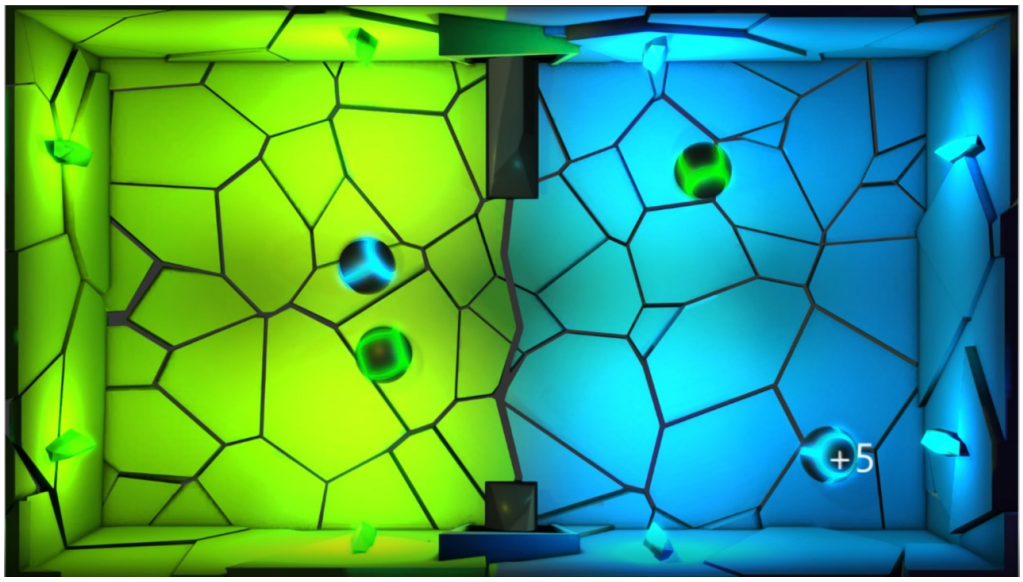
- Predicting the trajectory of objects
- Focusing
- Perceptivity
- Movement precision
- Exercise with or without support from healthy limb

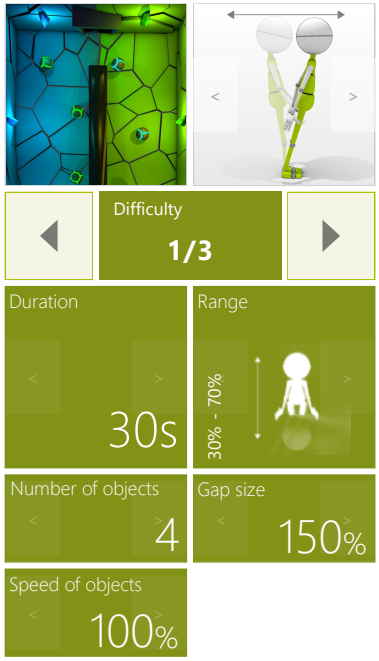
INSTRUCTION FOR PATIENT

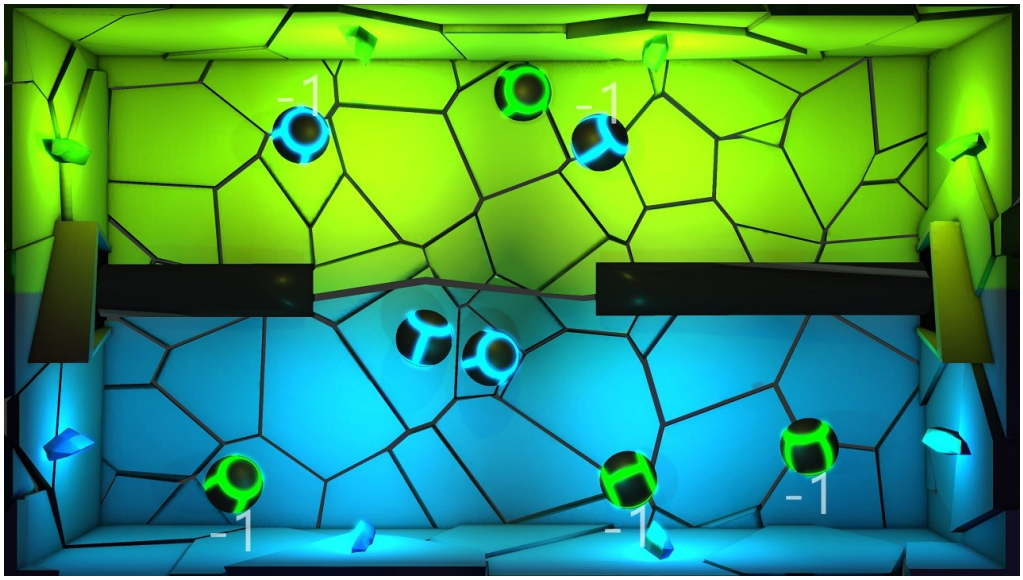
Pass or block the balls so that the blue balls are on the blue side and the green balls are on the green side of the screen.

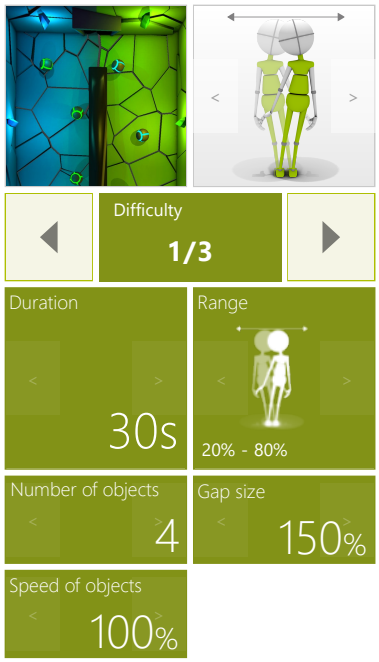
VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

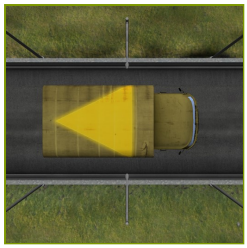
SAMPLE SETTINGS











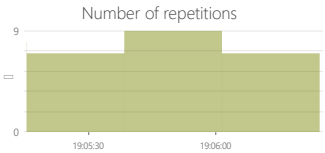
MEMORY

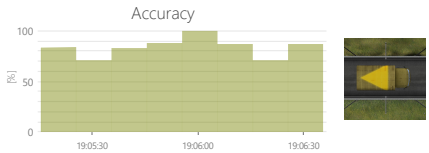
TRUCKS

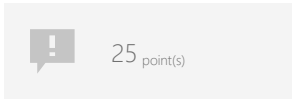
Measure and train individual's skills to memorize information.

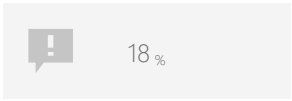
CONTROL MODES

RESULTS









ADJUSTMENTS

- Task duration
- Range
- Variations

OBJECTIVES

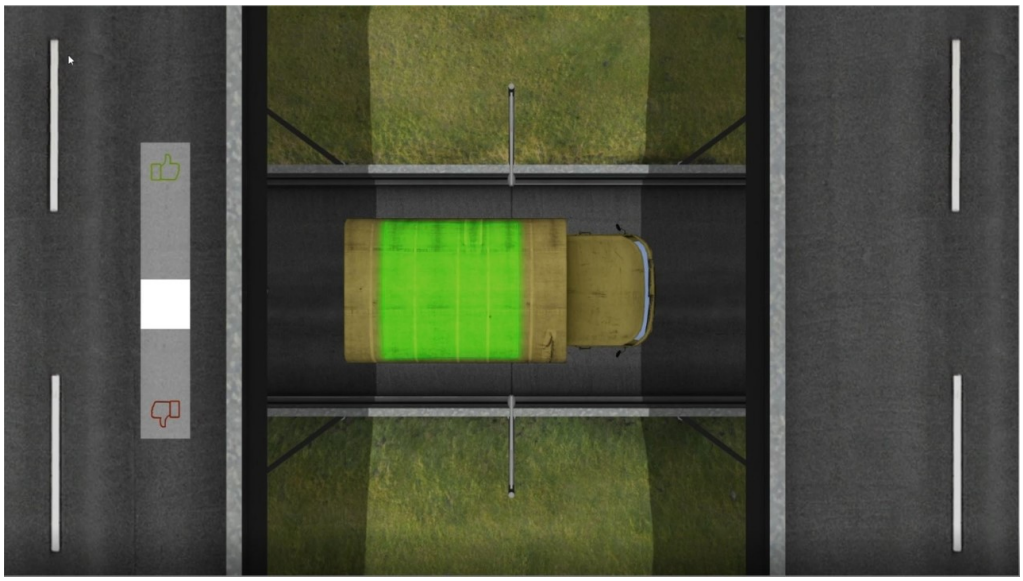
- Logical tasks
- Focusing
- Perceptivity

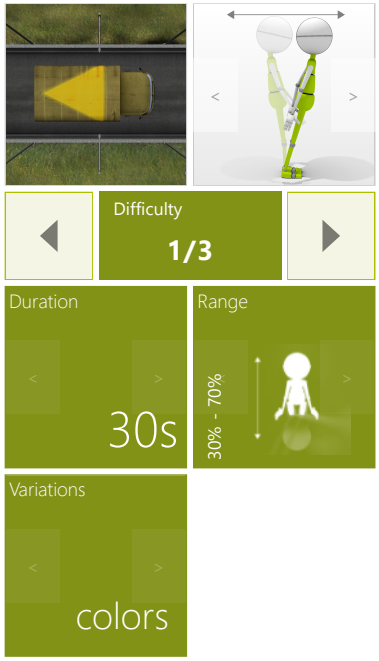
INSTRUCTION FOR PATIENT

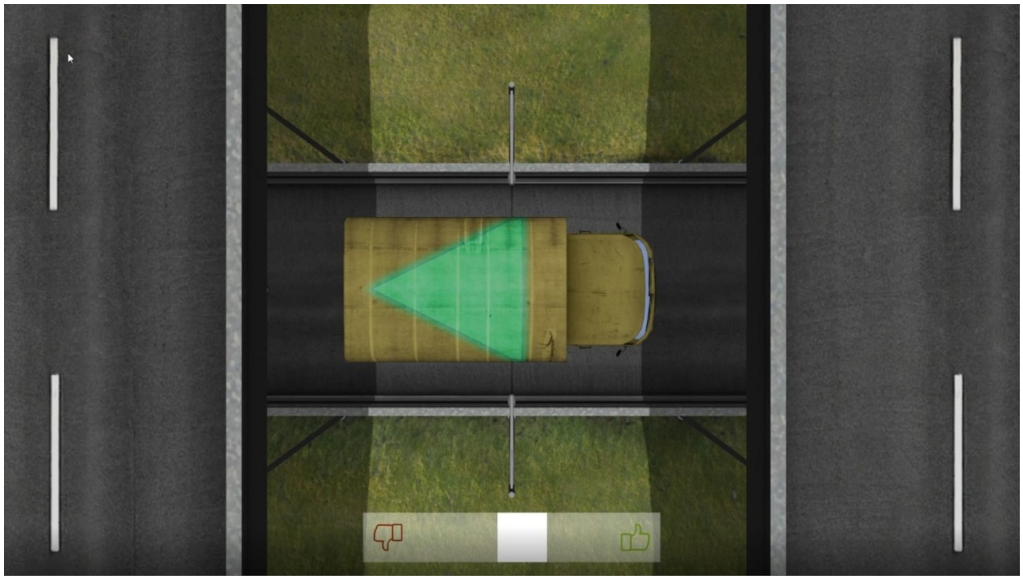
Remember the shape and/or its color on the roof of the car you see. Decide with thumbs up or down whether the next car has the same shape and/or color on the roof as the previous one.

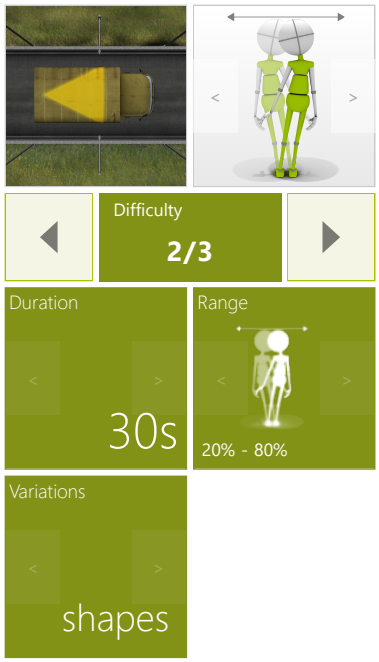
VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SAMPLE SETTINGS









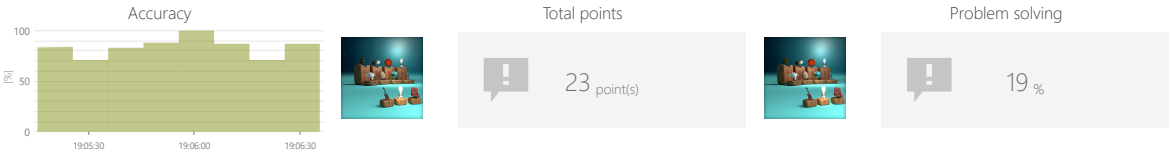
PROBLEM SOLVING

CLONES

Measure and train individual's skills to reach a solution of specific problems. Problem solving may include mathematical or systematic operations and can be a gauge of an individual's critical thinking skills.

CONTROL MODES

RESULTS



ADJUSTMENTS

- Task duration
- Time to complete action
- Range
- Number of pairs

OBJECTIVES

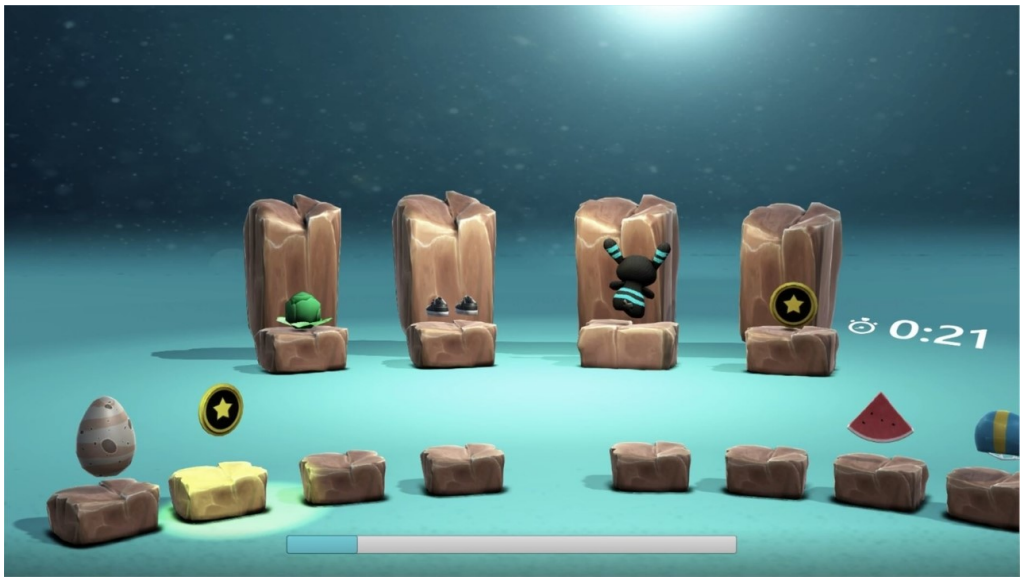
- Perceptivity
- Visual motor coordination
- Logical tasks

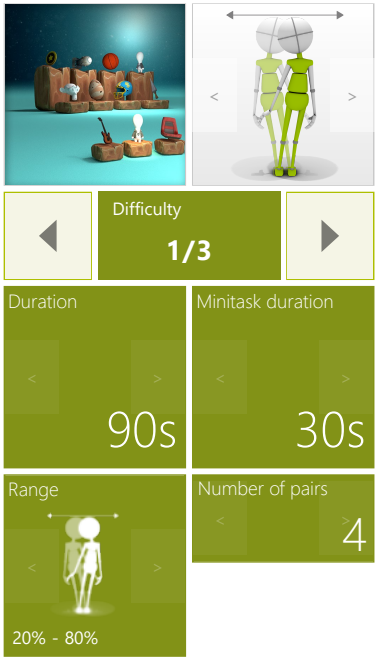
INSTRUCTION FOR PATIENT

Select the item which has a pair on the screen

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SAMPLE SETTINGS





SPECIALIZED

BLOOD PRESSURE

Specialized tasks and evaluations that collect data from multiple categories or do have a unique objectives.

CONTROL MODES

OBJECTIVES

- Monitor external parameters

INSTRUCTION FOR PATIENT

Measure yourself your blood pressure and type it in the result

ROMBERG TEST

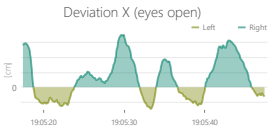
SPECIALIZED

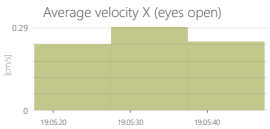
ROMBERG TEST

Specialized tasks and evaluations that collect data from multiple categories or do have a unique objectives.

CONTROL MODES

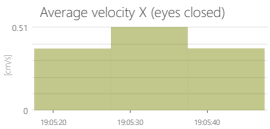
RESULTS





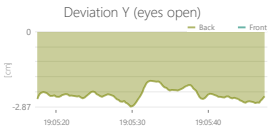
Area (eyes open)

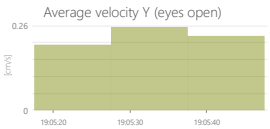
0.8 cm^2



Area (eyes closed)

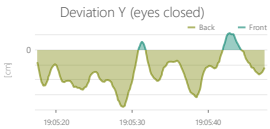
5.4 cm^2

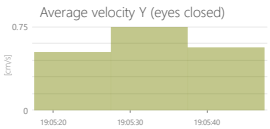




Length (eyes open)

11.4 cm





Length (eyes closed)

24.9 cm

Area (eyes closed / eyes open)

0.16

Length (eyes closed / eyes open)

0.46

ADJUSTMENTS

- Time to complete action
- Show feedback

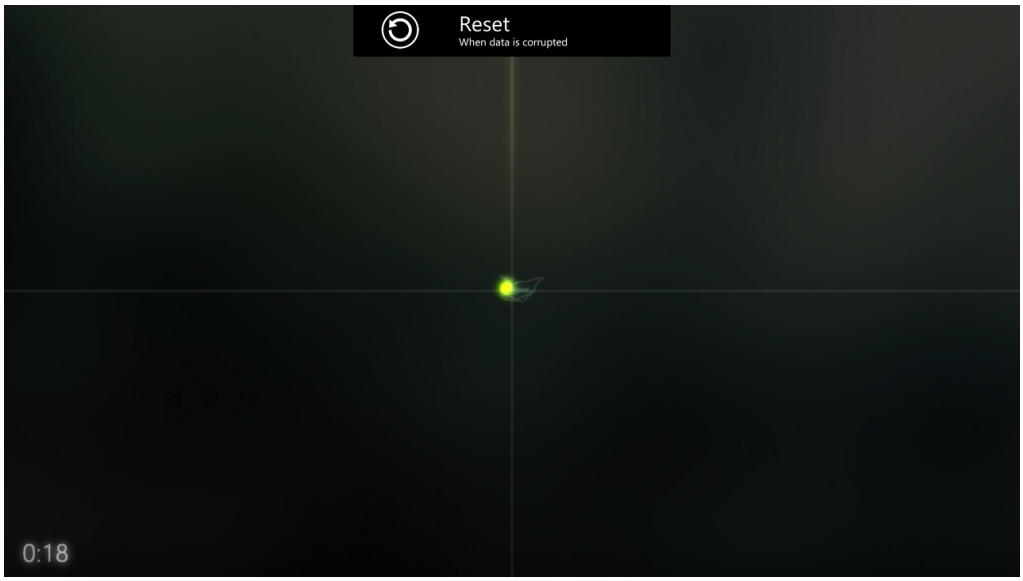
OBJECTIVES

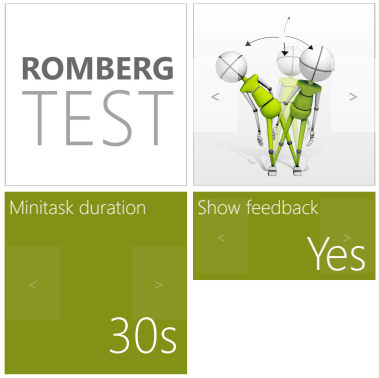
- Assesses static standing balance

INSTRUCTION FOR PATIENT

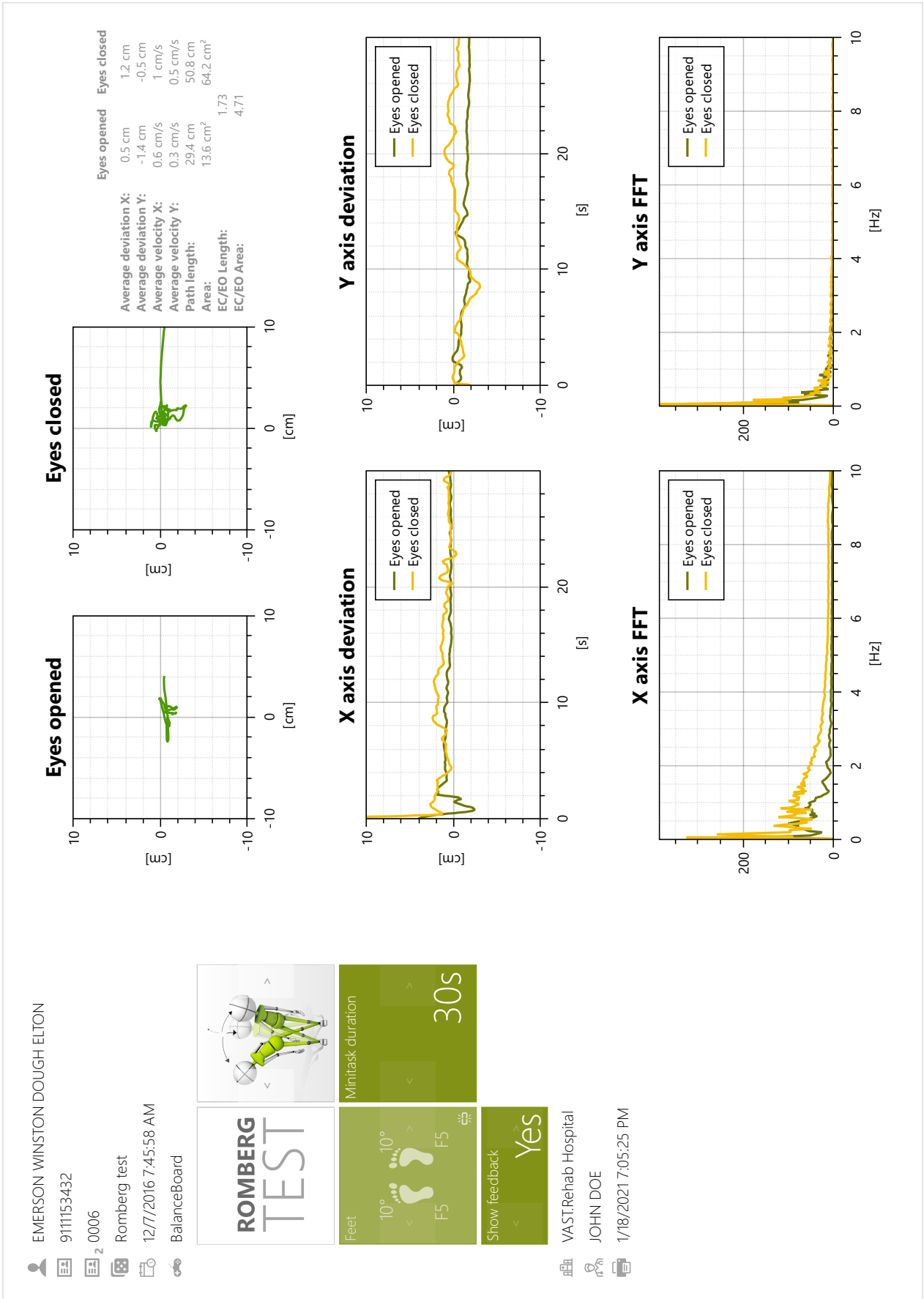
Romberg test. Try to stand as steadily as you can. First with eyes open, then with eyes closed

SAMPLE SETTINGS





SAMPLE REPORTS



SPECIALIZED

STABILITY TEST

Specialized tasks and evaluations that collect data from multiple categories or do have a unique objectives.

CONTROL MODES

RESULTS

ADJUSTMENTS

- Time to complete action
- Show feedback
- Radius

OBJECTIVES

- Relaxation
- Postural stability

INSTRUCTION FOR PATIENT

Keep your body balanced