CYBERITH

*VIRTUAL REALITY LOCOMOTION
FOR PROFESSIONALS*
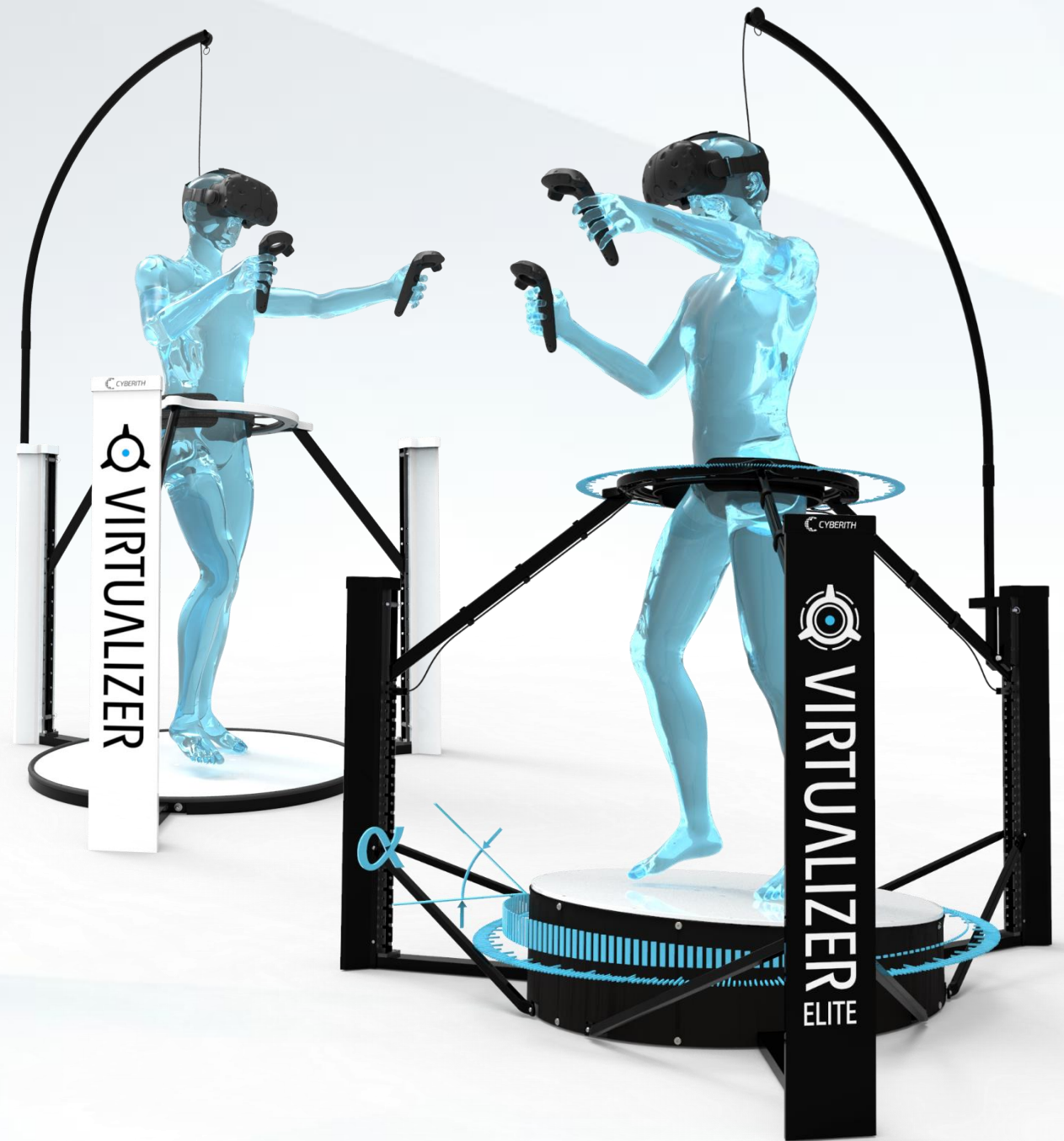
VIRTUALIZER

VIRTUALIZER ELITE

THE COMPANY

Established since 2014, Cyberith GmbH is the world leading provider of professional locomotion devices for virtual reality.

After entering the market in 2016 with the Virtualizer and the Virtualizer ELITE, Cyberith's technology has obtained a firm position in a broad field of applications globally.

Over five years of continuous product development and three years of market experience have led us into creating the only second generation VR Treadmill available: The Virtualizer ELITE 2.

Research & Development

Out Of Home Entertainment
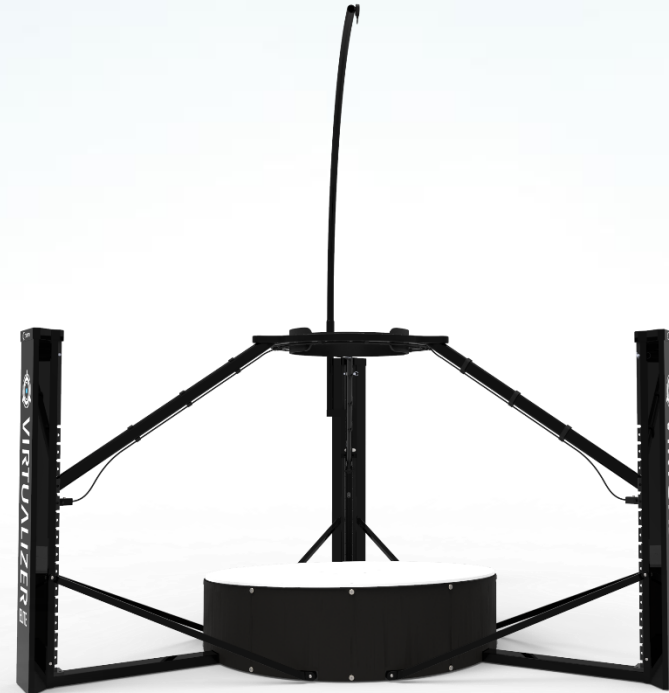
Training & Simulation

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THE PRODUCTS

Cyberith's core technology consists of locomotion devices for virtual reality applications which allow users to walk freely in any kind of virtual environments.

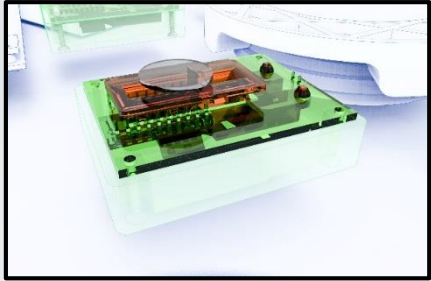**Virtualizer Research & Development Kit**
basic version

Virtualizer ELITE 2
*2ⁿᵈ generation technology
with integrated motion platform*

THE TECHNOLOGY – *Sensor System*

The Virtualizer products are the worlds only VR Treadmills with an optical and fully implemented tracking system.


THE MOTION SENSORS
6 optical motion sensors are implemented in the Virtualizer's baseplate to track the walking speed and the movement direction of the feet.
The ultra-high framerate of 1000 Hz guarantees extremely fast and precise tracking.
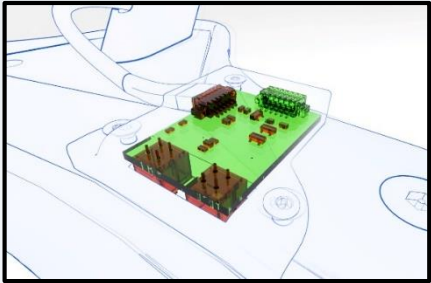
THE ROTATION SENSOR
An optical rotation sensor is implemented in the Virtualizer's ring, measuring the orientation of the user's hips.
Combined with the orientation of the headset, our system allows for decoupled viewing and movement directions.
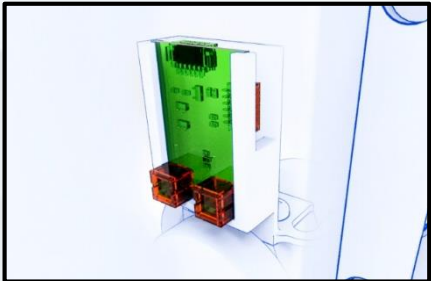
THE HEIGHT SENSOR
The optical height sensor is implemented in one of the pillars and tracks the height of the user's hips. This can be used for scaling the avatar or detecting vertical movements such as crouching or jumping.

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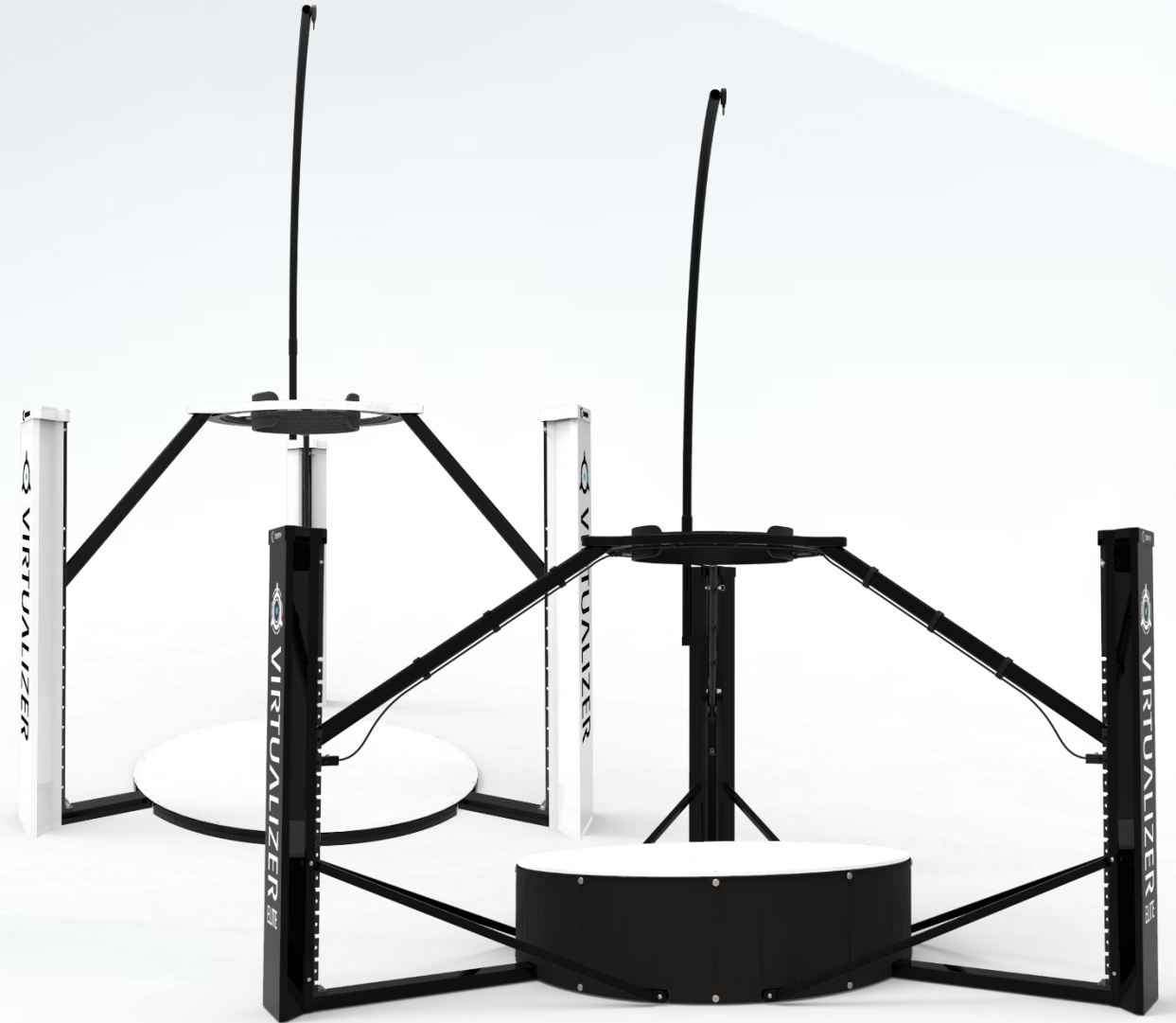
THE TECHNOLOGY – *Mechanical Advantages*

The Virtualizer products include everything that is needed for easy operation and a great user experience.

VERTICALLY MOVABLE
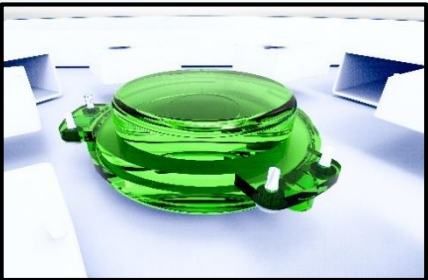The Virtualizer's ring is flexibly movable vertically:
- No adjustments required for users of different size.
- Allows for crouching and jumping.

CABLE GUIDING SYSTEM
The Virtualizer guides the wires of the Head Mounted Display.
Used correctly, the system avoids wires from tangling up and the user from wrapping himself in cables.

VIBRATION UNIT
The Vibration unit, that is implemented in the baseplate of the Virtualizer products, allows to provide the user with additional haptic feedback, increasing the feeling of immersion in your specific application.

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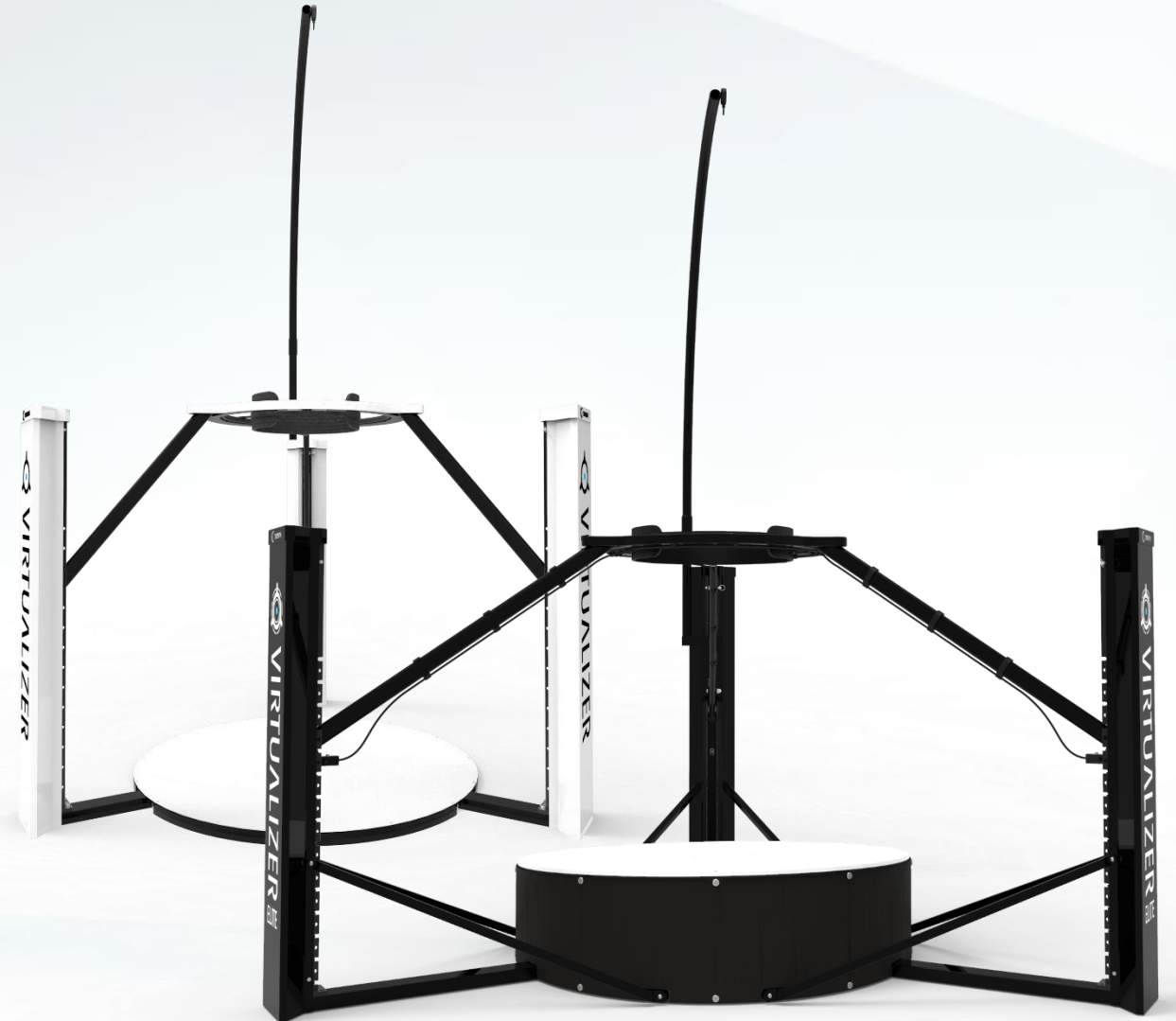
THE TECHNOLOGY – *Virtualizer SDK*

The Virtualizer SDK is straightforward to integrate and fits all Virtualizer products. Developers are able to make their software natively compatible with our products within minutes.

MAIN FUNCTIONS
The Virtualizer's main functions focus on the essentials of locomotion input:
- Movement speed (m/s)
- Movement direction (0º-360º)
- Body orientation (0º-360º)
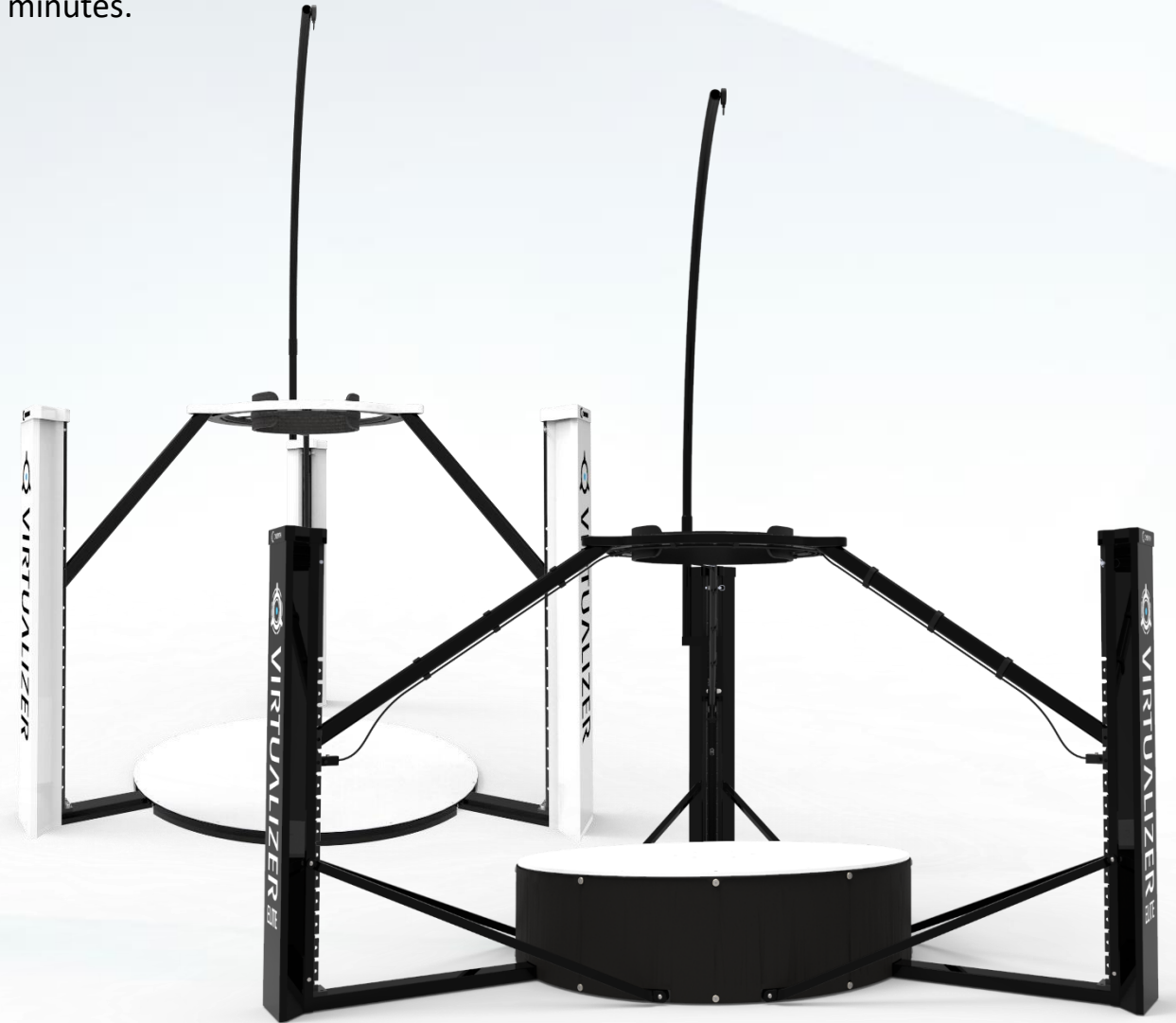- User's height (cm)

TOOLS
- Native SDK for C++, C# & Python
- Plugins for Unity and Unreal Engine
- Complete example projects
- Guidelines for integration

ADVANTAGES OF USING THE SDK:
- No additional software
- No additional drivers
- Works natively with the Virtualizer
- Enables Decoupling
- Analogue movement speed detection
- Precise orientation & height detection

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THE TECHNOLOGY – Motion Platform

The Virtualizer ELITE 2 is the worlds first VR Treadmill with an implemented motion platform for an easy gait. It actively supports the gait of all users, independently of their physical characteristics.

LESS PHYSICAL EFFORT
The motion platform actively supports the user in walking. This leads to dramatically reduced physical effort and therefore enables long virtual marches.
4 different settings allow to incrementally decrease the physical effort.

FASTEST LEARNING CURVE
Due to the active support of the motion platform, getting into the movement is much easier compared with any other concept of VR locomotion.
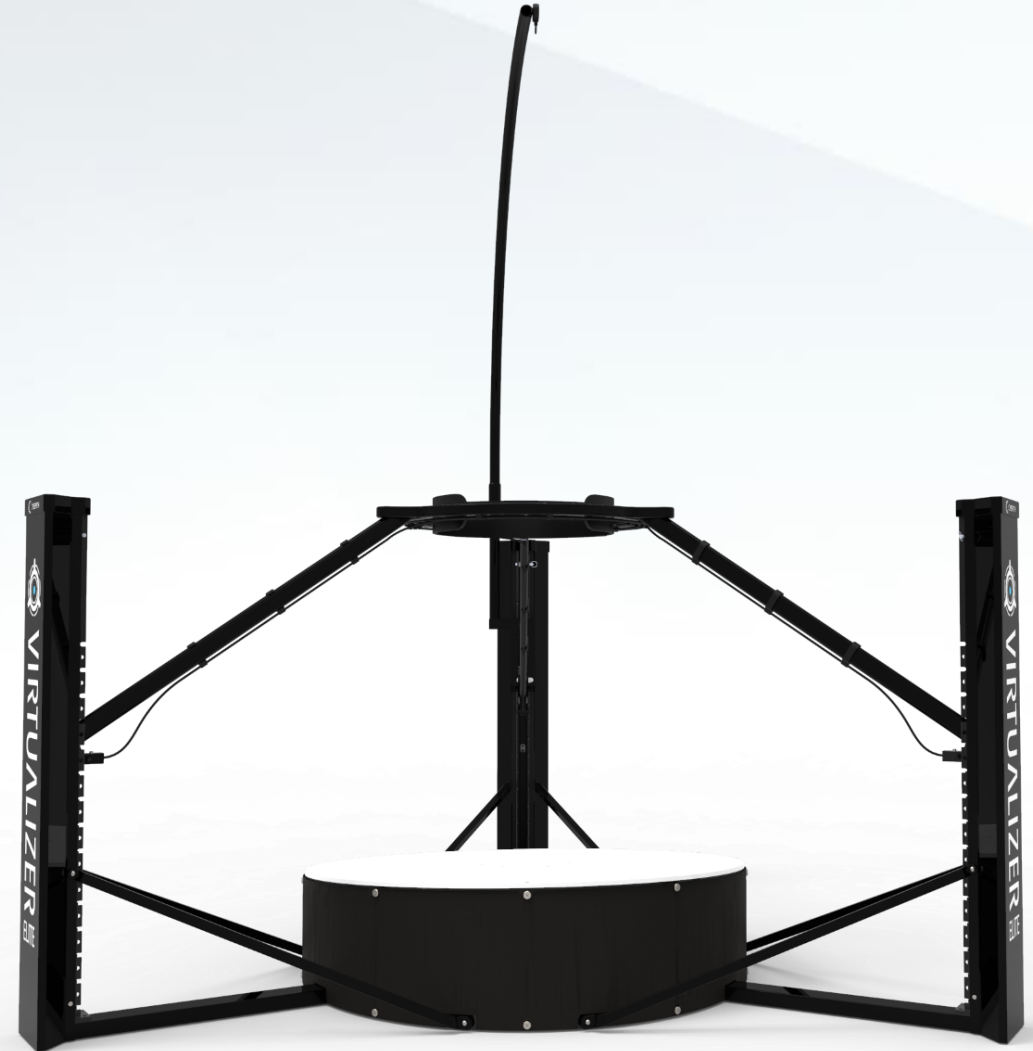The correct walking movement is easy to learn for kids as well as for elderly.

EASY GAIT FOR EVERYONE
The system individually supports the gait of everyone, independently of the user's height, weight or age.
Our patented system makes walking in VR easy and smooth for everyone.

VIRTUALIZER ELITE 2

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THE TECHNOLOGY – Heavy Use Product

In addition to offering the unique Motion Platform, the Virtualizer ELITE 2 is a product designed for heavy use and extremely safe operation.
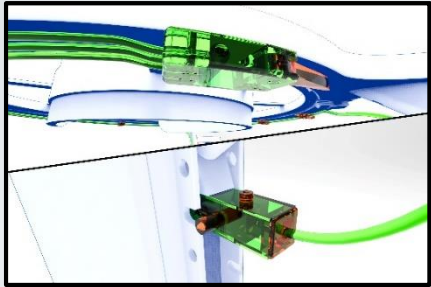
AUTOMATIC SAFETY FUNCTION
The automatic safety function locks the users ring in place automatically, thus leading to maximum safety of the user – without requiring any efforts of the operator.
The system can be deactivated easily, to allow for maximum freedom of movement.
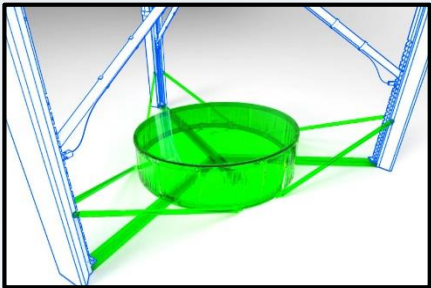
EXTRA STRENGTH & DURABILITY
The mechanical construction of the Virtualizer Elite 2's base provides extra strength to ensure long-lasting durability for cases of heavy use.
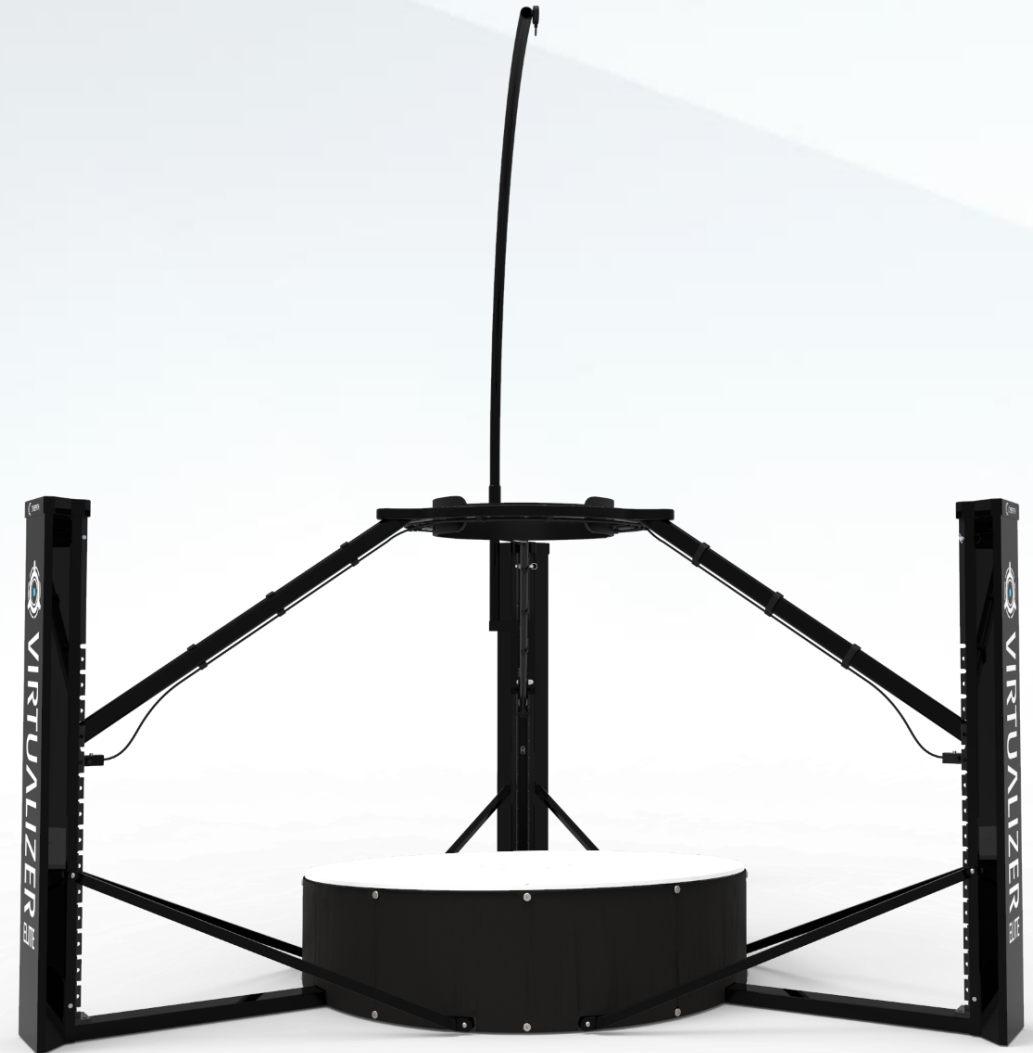Thus, the Virtualizer ELITE V2 is bigger and heavier than it's smaller brother.

HIGH-CLASS WORKMANSHIP AND MATERIALS
The Virtualier ELITE 2 uses highest quality materials and components manufactured in our own production site located in St. Pölten, Austria.
This allows us to supply our customers with spare parts & improved components quickly and flexibly.

VIRTUALIZER ELITE **2**

THE ECOSYSTEM – Cyberith Arcade

Cyberith Arcade is our proprietary Content Distribution & Arcade Management System for the Commercial Entertainment market.

FULLY OPTIMIZED GAMES
Choose from a list of games, that are fully optimized for Commercial Use and our technology. All games are easy to get into and feature levels of optimal durations for Commercial Entertainment.

ONLY PAY WHAT YOU NEED
Using our system is not related to any fixed costs. While some applications are totally free to use, others are charged on a pay per minute basis.
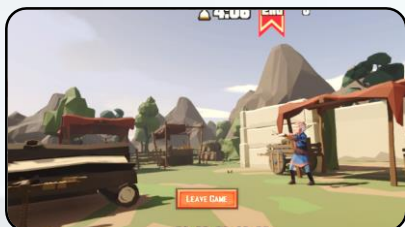
OPERATOR CONTROL PANEL INCLUDED
Centrally control and monitor all your VR stations from a single Operator Computer.

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THE ECOSYSTEM – Virtual Trainer Software

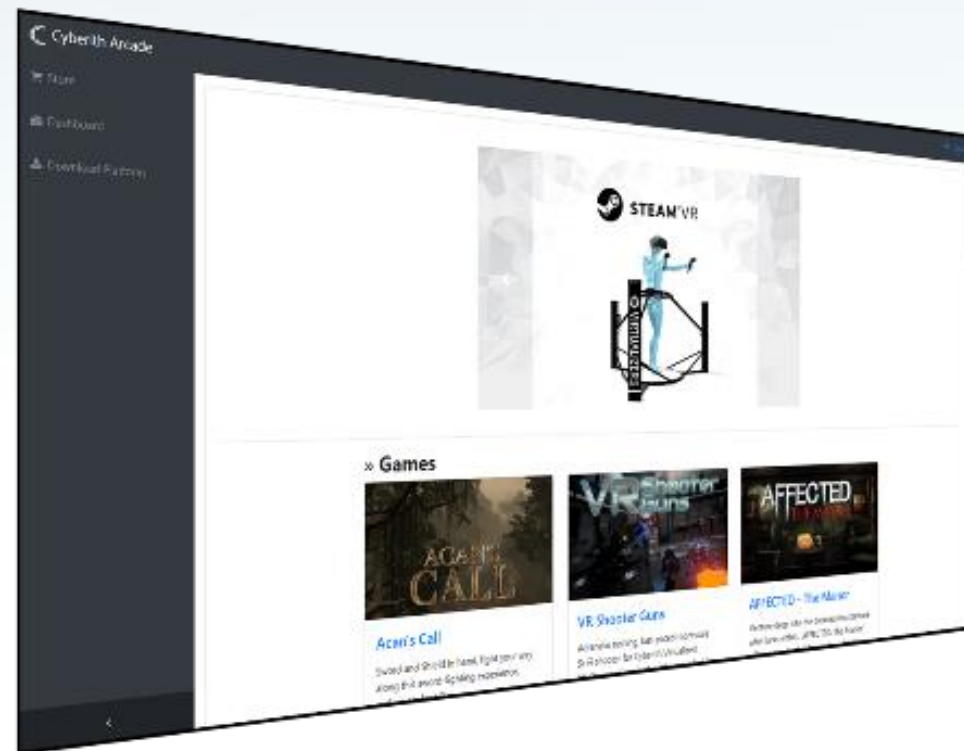The Virtual Trainer Software is designed for being the first experience for novice users. Vicky, our virtual assistant, introduces users in how to use VR and the Virtualizer. It therefore takes all the related effort from you and provides an entertaining and diverting experience to the user.

SIMPLE INSTRUCTIONS
The instructions are both visually animated and explained by Vicky's voice.
The instructions provided are easily understandable for everyone, gamer, athlete or couch potato.

SMART MOVEMENT ANALYSIS
The Software automatically detects the user's gait and gives positive feedback or additional tips for improvements.

GAMIFIED EXPERIENCE
Entertaining experience for everyone, independently of used in Arcades, Research Institutions or other professional environments.

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THE ECOSYSTEM – SteamVR Integration

Due to our SteamVR Driver, the Virtualizer is compatible with all SteamVR games, that allow you to walk around (often referred to as "free locomotion").
This included very popular titles such as Arizona Sunshine, Pavlov VR, Serious Sam VR, Skyrim VR and many more!

USE STEAM-VR GAMES
The Virtualizer products can be used with any SteamVR game, that supports "free locomotion".
That means, it works with games that allow you to walk around smoothly.

ANALOGUE SPEED & DECOUPLING
The integration allows for decoupled movement & viewing directions, by using directional compensation.
It also allows for analogue movement speeds, which are adjustable by the operator.

INTEGRATED IN STEAM VR
The Virtualizer is integrated in SteamVR as an Input Controller, similarly to a Vive Controller, Index Controller or Oculus Touch.
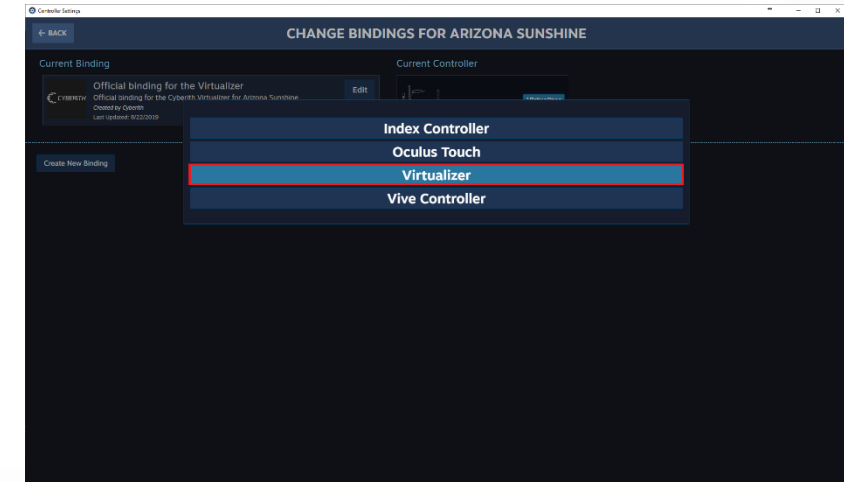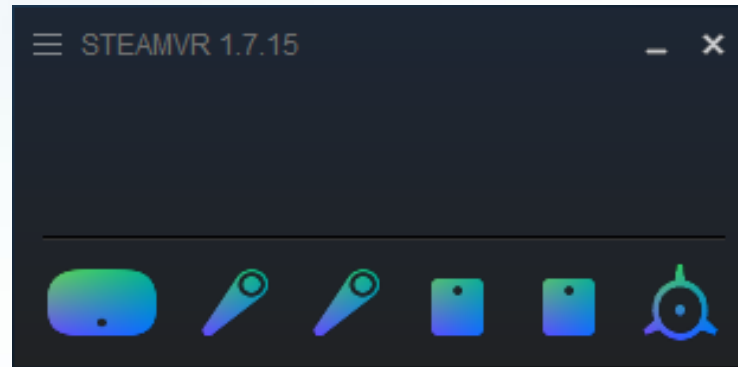
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THE ECOSYSTEM – Developer Center

Stay up to date by receiving new versions of Firmware, SDK and other software components.

REGULAR FIRMWARE UPDATES
Always get the latest Firmware versions from Cyberith whenever improvements are made or new technology is implemented in our software.

FULL ACCESS TO SDK
Download our native SDK in C#, C++ and Python or our fully prepared Plugins for Unity and Unreal Engine.

HARDWARE ANALYSIS
Check your Virtualizer's Data with the Virtualizer Control Panel, read out the error messages and send the data to Cyberith.
We implemented an error analysis tool in our system in order to be able to help quickly and efficiently in case that is required.
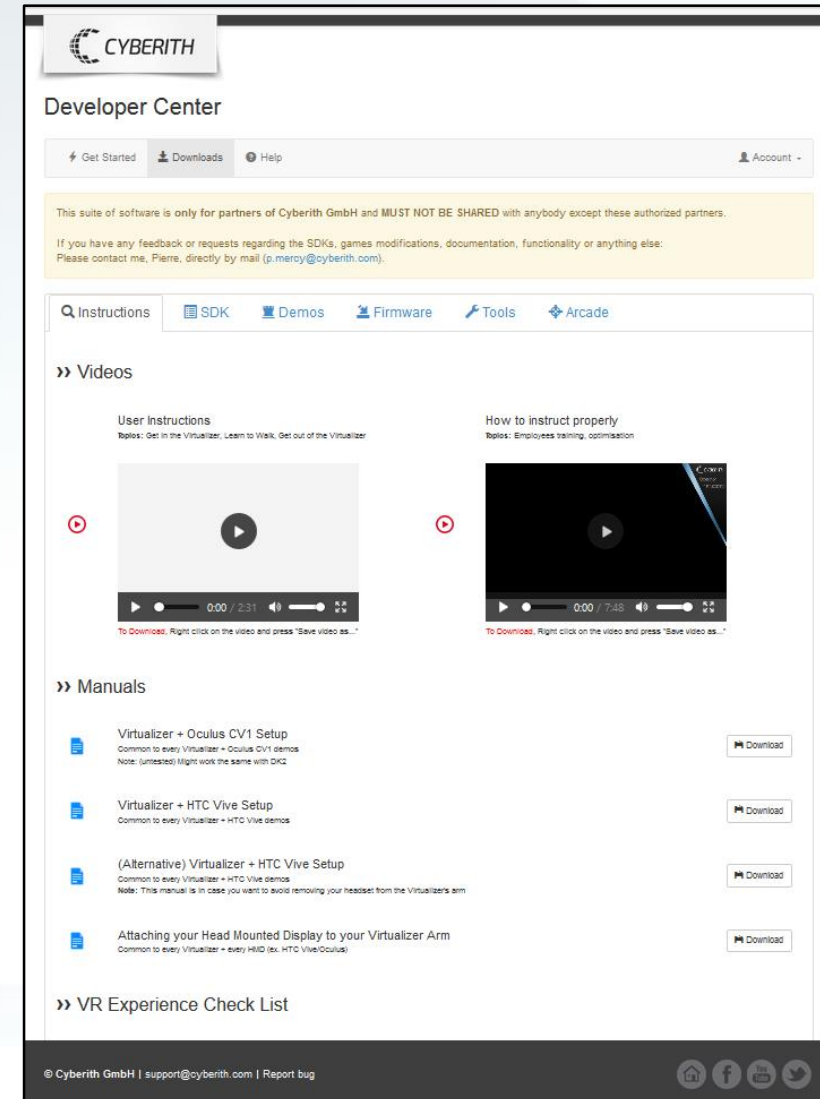
THE INSTALLATION

We help you to find the ideal configuration of VR Setups in your existing room and are available for helping with regards to installation.

LITTLE SPACE REQUIREMENTS
We consider an area of 2.5 x 2.5 meters to be the ideal size per Virtualizer VR installation.
That size gives more then enough freedom to the movement of the users arms and allows operators to go everywhere comfortably.

EASY TO INSTALL
Our products come with full instructions and are typically installed by our customers.
In case any help is required, we are of course available for supporting installation remotely and/or on site.

FITS INTO YOUR EXISTING ROOM
Our systems are fitting into almost every existing room without requiring any additional boxes or housings.
We are happy to help you finding the ideal layout for your specific room.

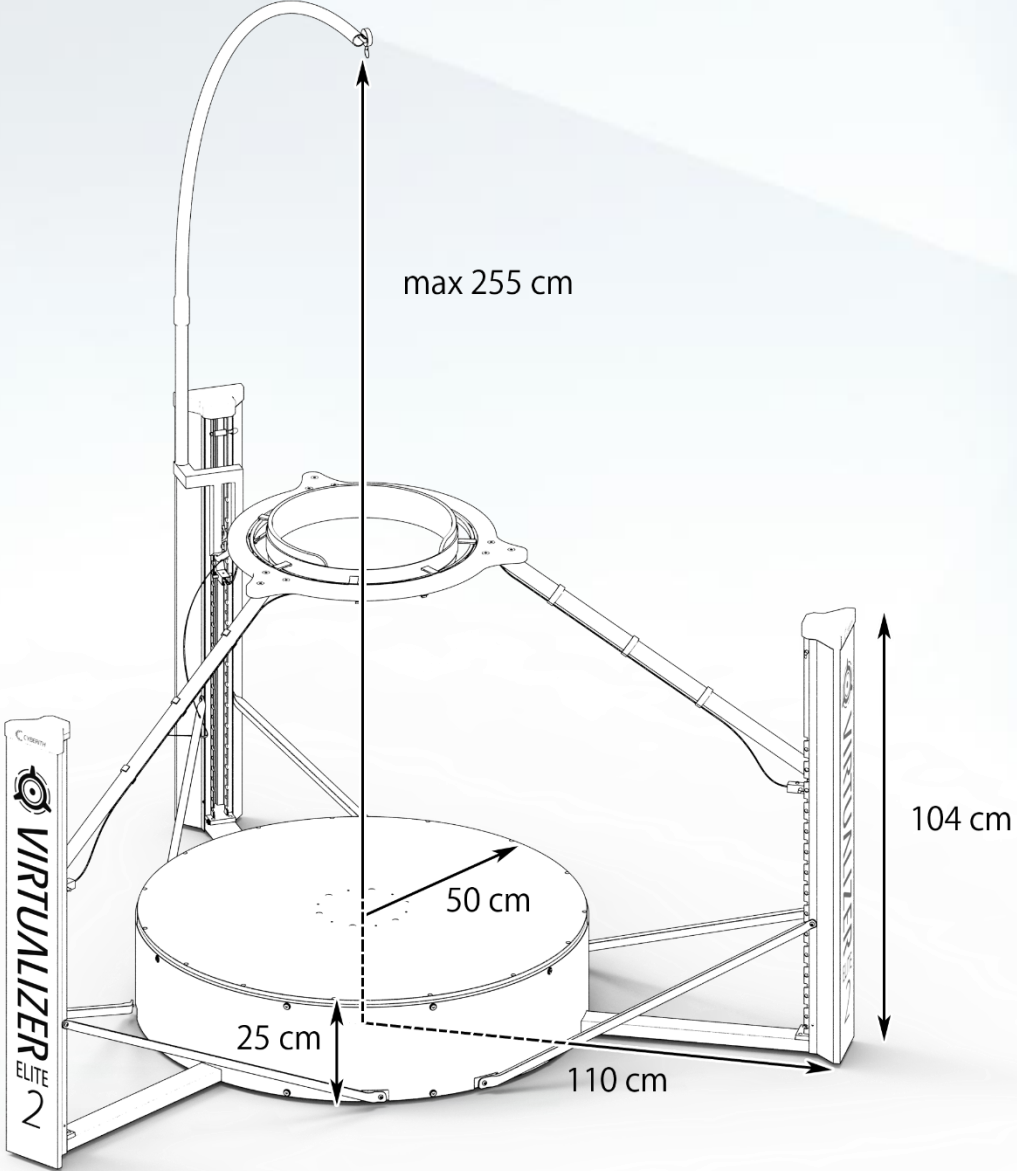CYBERITH
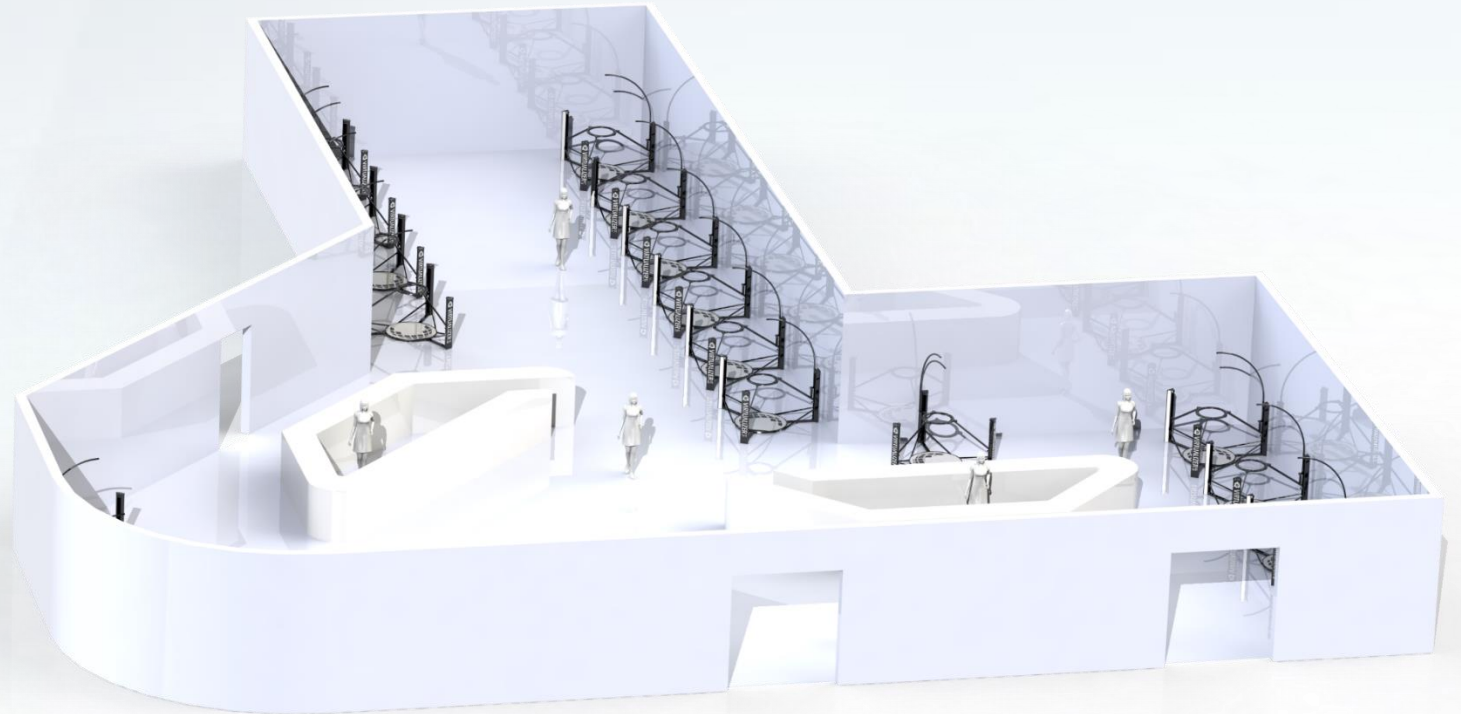
SPECIFICATIONS – *Virtualizer R&D Kit*

Sensor system	Optical, fully integrated
Floor sensors tracking frequency	1000 frames/sec
Ring angle tracking accuracy	2,8°
Ring height tracking accuracy	7 mm
Connection to computer	USB 2.0/3.0
Software Development Kit (SDK)	native in C++ & C#; Plugins for Unity & Unreal
Haptic Unit Implemented	Yes
Decoupling[1]	Yes, standard in all applications
Recommended User Height	120 – 210 cm
Recommended User Weight	max. 120 kg
Shoes Type	Overshoes (Small and Large included)
Adjustment free for user height	No, HMD cable needs adjustment
HMD Cable Management System	Yes
Package size	130 x 115 x 20 cm
Weight (including packaging)	66 Kg
Recommended usage	Research, Development, Experimentation

[1] Decoupling allows for independent movement & viewing directions

230 cm

104 cm

50 cm

80 cm

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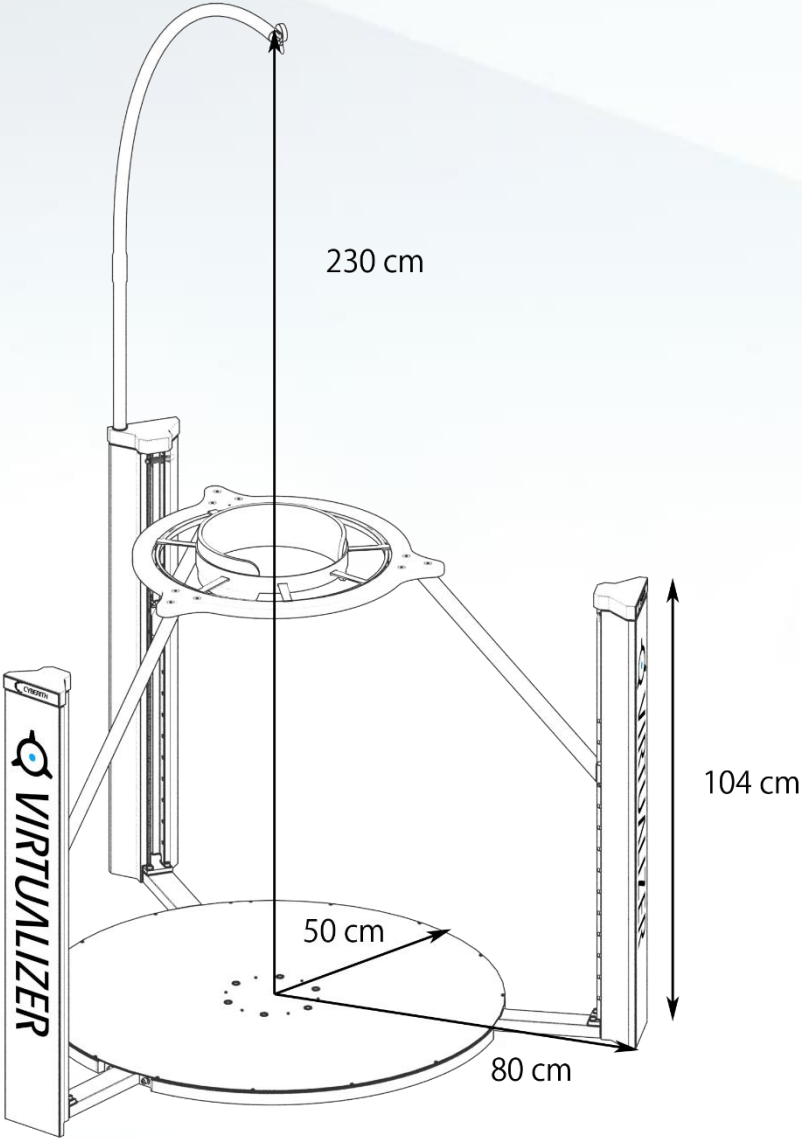
SPECIFICATIONS – Virtualizer ELITE 2

Sensor system	Optical, fully integrated
Floor sensors tracking frequency	1000 frames/sec
Ring angle tracking accuracy	2,8°
Ring height tracking accuracy	7 mm
Motion Platform System	2 DoF, powered by hypoid drive
Motion Platform Inclination	max. 17°
Connection to computer	USB 2.0/3.0
Power Connection	240V, 50 Hz OR 110V, 60 Hz
Average Power Consumption in operation	150 W (reference user of 75 kg)
Maximum Power Input	400 W
Software Development Kit (SDK)	native in C++, C# & Python; Plugins for Unity & Unreal
Haptic Unit Implemented	Yes
Decoupling[1]	Yes, standard in all applications
Recommended User Height	120 – 200 cm
Recommended User Weight	max. 120 kg
Shoes Type	Overshoes (2x Small and 2x Large included)
Adjustment free for user height	Yes
Mechanical construction	Designed for heavy use
HMD Cable Management System	Yes
Automatic Locking Function	Yes
Package size	2 Boxes: 170 x 115 x 27 cm & 130 x 115 x 20 cm
Weight (including packaging)	Box 1: 60 kg; Box 2: 60 kg
Recommended usage	Training, Simulation, Commercial Entertainment

[1] Decoupling allows for independent movement & viewing directions

max 255 cm

104 cm

50 cm

25 cm

110 cm

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