e-skin

MEVA

High Precision Motion Capture

Ready to Measure in only 30 Seconds

e-skin MEVA is the world's easiest and highly accurate inertial motion capture system. It can be used anytime, anywhere, with no camera required. 7 IMUs are mounted on the garment for the lower-body version and 18 IMUs for the full-body version, allowing measurement to begin within 30 seconds. e-skin MEVA has the same accuracy as gold standard optical motion capture systems, including highly sensitive detection of internal and external rotational movement of the limbs. Post processing of data is not necessary, which significantly reduces the cost and time required for producing analysis results. e-skin MEVA clothing can also be easily worn by the elderly, thus expanding the range of users.

Xenoma

Ready in just 30 seconds

The world's easiest motion capture suit that allows you to start measuring in only 30 seconds without attaching markers. Results can be obtained immediately after measurement.

No camera and studio needed

e-skin MEVA can be used anywhere (indoor and outdoor),and by anyone - it does not require any special training.

Capturing natural movement without markers

Sensors are embedded in the fabric. They do not protrude or hinder natural body movement.

No tedious and time-consuming post-processing

As soon as measurement starts, kinematic motion is animated in 3D bone model on a PC and monitored in real time. Results are available immediately after measurement.

Easy to clean

If the product gets dirty due to perspiration or prolonged use, it can be washed by hand* with a neutral detergent at home.
* Bleaching and tumble drying are not possible.

e-skin MEVA

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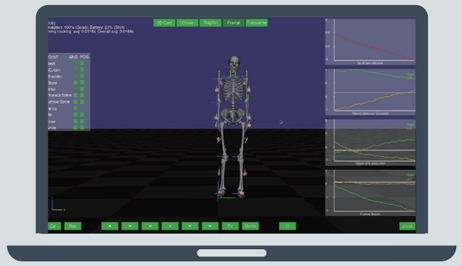
It can be used anytime, anywhere, with no camera required.

Bluetooth®



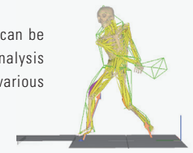
PC with USB dongle

Conventional optical motion capture analysis software can also be used

☐ **Musculoskeletal modeling motion analysis software**

nMotion musculous

3D motion data / marker data from MAC3D system can be exported to Musculoskeletal modeling motion analysis software to analyze muscles and skeleton from various angles.



☐ **Motion analysis software**

Visual3D

Kinematics analysis to determine joint position and posture from motion capture data, as well as kinetics analysis to determine the force applied to joints can be performed.

Image courtesy of NAC Image Technology, Inc.

Case studies

Case study video

e-skin MEVA is used in nursing care,industrial and sports projects.

☐ **Motion analysis in nursing care**

Smart Life Care Co-Creation Studio

Platform for the development, demonstration, and distribution of nursing care robots

Open innovation center established by Kyushu Institute of Technology and Kitakyushu Science and Research Park. The facility is equipped with beds, walkers, wheelchairs, simulated bathtubs and simulated stairs. It conducts measurement and analysis of nursing care movements using various advanced biometric devices.

☐ **Motion analysis in factories**

Hitachi, Ltd.

Joint development of wearable AI to reduce the workload of on-site workers

Aiming to improve worker safety in the industrial field, together with the German Research Center for Artificial Intelligence (DFKI) and Hitachi, Ltd., we are developing a wearable AI technology that allows to constantly monitor the physical load of workers.

☐ **Motion analysis in sports**

All Japan Taekwondo Association

Collaboration between the University of Tokyo and the All-Japan Taekwondo Association

The two institutions cooperate by sharing human, intellectual and physical resources. The purpose is to contribute to the promotion of sports and the development of sports medicine and science research in Japan.

1 [Option] Pants

Measuring pants that are easy to put on and take off with the assistance of one person

e-skin MEVA Relax

e-skin MEVA Relax pants can easily be put on and taken off in a sitting or standing position with the assistance of only one care taker. The pants have buttons and Velcro fasteners on both sides. They enable lower limb gait measurement for those who have physical disabilities. The mesh material can be sterilized with alcohol spray and dries easily.

2 [Option] Software

Gait measurement system

e-skin LETS WALK

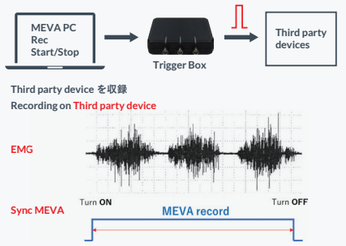
e-skin LETS WALK is a gait analysis system using the lower-body version of e-skin MEVA. The gait health check sheet displays scores for five criteria such as stride length or foot clearance. Each criterion is rated on a 20-point scale with actual measurement data and brief advice being included. Measurement can be completed within 5 minutes by simply wearing the pants over normal clothing and walking 10 steps. The entire lower body movements including knee and hip joints, which cannot be measured with a sensor mat, are analyzed for gait movement.

3 [Option] Hardware

Time synchronization device

e-skin MEVA Trigger Box

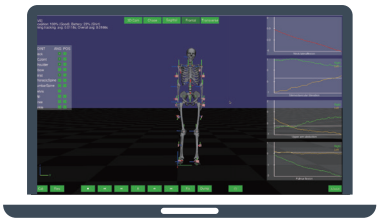
e-skin MEVA Trigger box is a device that outputs a trigger signal of 5V/0V via BNC cable to time-synchronize the motion data of e-skin MEVA with the data measured by third party devices. The e-skin MEVA PC links with the Trigger box via USB port and register time delays for trigger signal, if any, to purely time-synchronize measured data during post-processing.



Contents

■ Standard Set

□ e-skin MEVA Hub
□ Charging cable



□ Dedicated PC
e-skin MEVA software
e-skin MEVA sensor calibration software
□ Charging cable
□ USB dongle
□ Carry bag
□ Calibration box

■ Apparel

□ e-skin MEVA Full-body version
e-skin MEVA Headband (1 IMU sensor)
e-skin MEVA Shirt (10 IMU sensors)
e-skin MEVA Pants (7 IMU sensors)

Full-body version
video

□ e-skin MEVA Lower-body version
e-skin MEVA Pants (left)

Lower-body version
video

[Option] e-skin MEVA Relax (right)

e-skin MEVA Relax
video

Specification

e-skin MEVA Headband (Full-body version)	Size	One size fits all
	Material	Polyester, Acrylic
e-skin MEVA Shirt (Full-body version)	Size	Unisex 1 / 2 / 3 (3 sizes)
	Material	77% Polyester, 23% Polyurethane
e-skin MEVA Pants (Fb. and Lb. versions are identical)	Size	Unisex 1 / 2 / 3 (3 sizes)
	Material	77% Polyester, 23% Polyurethane
e-skin MEVA Relax	Size	One size
	Material	50% Polyester, 50% Composite fiber (polyester)
USB-Dongle	Size	H43.1 x W18 x D9.3 (mm)
	Charging terminal	USB Type-A

e-skin MEVA Hub	Size	H73.5 x W38.95 x D12.15 (mm)
	Weight	approx. 25 g
	Material	ABS
	Transmission	Bluetooth 5
	Recommended operating environment	Temperature:10 - 35°C, Humidity:20 - 80% (no condensation)
	Battery	380mAh
	Charging terminal	USB Type-C
	Recommended charging environment	Temperature:10 - 35°C, Humidity:20 - 80% (no condensation)
Sampling frequency	100Hz	
Charging Cable	Charging terminal	USB Type-C
	Output capacity	5V/1A

* For improvement purposes, appearance and specifications are subject to change without notice.

Xenoma

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