

Phoenix Technologies Incorporated

Real Time 3D Motion Tracking



Visualeyez™...The Complete Standalone Motion Capture Solution!

Visualeyez™ is a patented, active optical motion tracking system developed for a myriad of applications. Using the most advanced technology available, it will cut down production costs while reducing turnaround time and facilitate all your applications by effortlessly collecting clean and accurate 3D motion data.

Real Time - ALL THE TIME

The *Visualeyez™* system is designed and developed for real time and operates in Real Time, ALL THE TIME. This is standard for all *Visualeyez™* systems at no additional cost to the user. Real time operation provides instant motion feedback as you are capturing data for motion analysis and control. See results immediately, make performance revisions and capture the motions you want... before you send everyone home.

Flawless Marker ID Tracking

By using active LED tracking technology, the *Visualeyez™* system provides each target marker (LED) with its own ID - up to 512 markers simultaneously. Each marker is distinguished from all others at all times, regardless of how close they get to each other. Close contact, multiple performers and occluded markers are easily tracked with the *Visualeyez™* system.

Rapid Motion Capture with High Quality Data

The *Visualeyez™* system proficiently collects up to 4300 individually identified 3D coordinates per second in real time, with incredible resolution and accuracy. It is now easier than ever to capture more markers, faster motions, and at higher frame rates while constantly obtaining high quality data.

VZSoftware and Compatibility

VZSoft™ is our remarkably user-friendly GUI that operates on Windows NT/2000/XP, whereas the *HydraNet™* option allows porting of real time motion capture data to other computers and platforms such as Linux. Simple to learn and use, *VZSoft™* allows you to control, filter, view, edit, and export, in real time, the data collected by a *Visualeyez™* Motion Tracking System. That means you can be working with your motion data within many industry standard 3D packages at the same time during your capture session. *VZAnalyzer™*, an advanced real time motion analysis tool, is for examining, analyzing, and comparing the capture data.

Applications

- Computer Animation
- TV and Film Effects
- Game Development
- Virtual Reality (VR)
- Sports Performance
- Biomechanics
- Gait Analysis
- Physical Rehabilitation
- Orthotics and Prosthetics
- Telepresence
- Robot Control
- Neuroscience
- Reverse Engineering
- 3D Navigation

Scalable To Suit Your Needs

More trackers mean more marker visibility and larger capture space. A *Visualeyez™* system is highly scalable to fit your specific motion capture requirements. You can start with a single tracker for simpler motions, then move up to 24 or more trackers for complex motion captures.

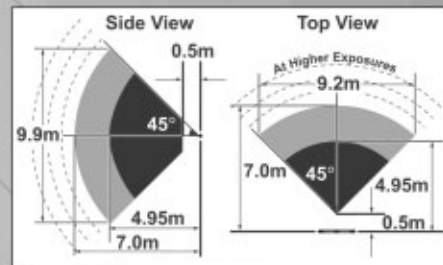
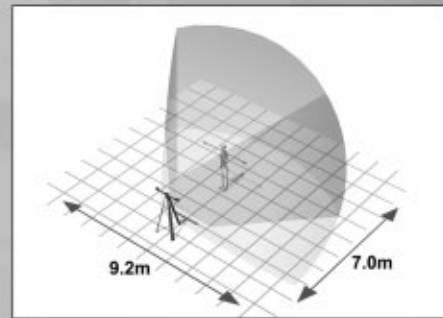
Portability and Easy Calibration

Extremely portable and easy to set up, each *Visualeyez™* tracker is built on a carbon composite structure and comes complete with a tripod for mounting. Individual trackers are pre-calibrated and it only takes minutes to calibrate a multi-tracker system.

TECHNICAL SPECIFICATIONS

Visualeyez™ Tracker Specifications

Sensing Volume	~190 cubic meters over a 7.0m radius (at minimum exposure; larger & deeper at higher exposure setting)
Resolution	0.015mm (ID) at 1.2m distance
Accuracy	0.65mm (3D combined; ~0.15mm ID accuracy at 1.2m distance)
Operating Angle	90° (+/-45° in both pitch and yaw), 106° diagonally at 5m.
Data latency	< 0.0005s at max. sampling rate (VZ4000) < 0.0006s at max. sampling rate (VZ3000)
Sensing rate	4300 3D coordinates per second (VZ4000) 3300 3D coordinates per second (VZ3000)
Data communication	Serial RS232/RS422 (921.6 kbps)
Ruggedness	15G (optional)
Mounting Orientation	Any (unrestricted)
Calibration	None needed for individual trackers. 1 min. per additional tracker.
Scalability	Up to 24 (more with HydraNet™)



Single Tracker Systems

The popular system setup for most research applications with budget constraints tends to be the single tracker system. Such a package is sufficient for tracking facial expressions, small and precise motions as well as motions with small rotational components.

Multiple Tracker Systems

For large range or complex motions with significant rotations, you may require a multi-tracker system. Our more standard multi-tracker systems consist of three to four trackers. Anywhere from two to more than twenty-four trackers can be integrated to create a multi-tracker set-up. These complete solutions provide users with:

- Increased capture space.
- 360-degree capture of LED markers to reduce marker occlusion and improve data quality.
- Flexible capture space as only one tracker needs to sense a marker in order to determine its 3D position. Trackers can be arranged in any way to meet your capture space requirements.

As every motion capture project is unique, we will work with you to establish the most advantageous system and arrangement for your particular application.

Third Party Compatibility

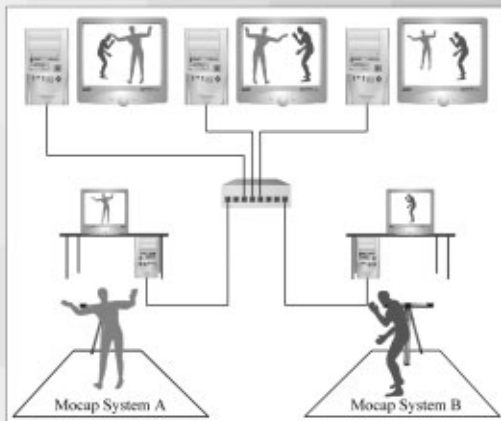
VZSoft™ and VZAnalyzer™ can export captured motion data to lots of application software.

Scientific	Animation	Export File Formats	Software Development (SDK)
- LabVIEW	- Maya	- DXF	- C
- MATLAB	- Soft Image	- C3D	- C++
- Visual 3D	- Lightwave	- CSM	- VRCD
	- 3D Studio Max	- DIFF	
	- Famous 3D	- TXT	
	- Filmbbox/Mocap	... more	

HydraNet™

This optional data distribution subsystem allows data captured by one or more Visualeyez™ motion capture systems to be combined and streamed in real time to as many other computers as the user desires.

Each application can pick and choose the motion data it needs for its own special purpose. Thus applications requiring high computing power and/or especially parallel processing, such as virtual reality, can easily be accomplished in real time.



Accessories

- Motion Capture Suit
- Motion Capture Gloves
- Digitizer Wand or Laser
- Wall and Truss Mounts
- Waterproof LEDs
- Tracker & LED Riser Attachments
- External Trigger for synchronization
- Motion Puck
- Facial Markers
- Micro Wired LEDs
- Shockproof Assembly

Contact Information

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