

Omek Beckon™ Development Suite

Unlock the Full Power of Your PMD[vision]® CamCube 3.0 with Omek Beckon

As part of your PMD[vision] CamCube 3.0 purchase, you are entitled to a complimentary copy of the Omek Beckon Development Suite.

The Omek Beckon Development Suite provides you with a rich and robust toolkit for incorporating natural and intuitive interfaces into your digital signage and other commercial applications.

Omek Beckon is optimized for the highest performance on both standard PC and embedded processors, giving you more power to run your device interface or applications. With Beckon, you can work in the languages, engines and frameworks that you are most familiar with. The Beckon SDK comes with a set of pre-defined gestures which can be used to design most device and application interfaces. For those who want to create their own command gestures, the Beckon Gesture Authoring Toolkit is available as an add-on that can save months of development time.

How Beckon Works

Beckon takes the data provided by the PMD[vision]® CamCube 3.0 – a depth map – and analyzes it for information about the scene being viewed (FIGURE 1). Using computer vision techniques, it first identifies the humans in the scene and separates them from the scene background (FIGURE 2). Beckon applies an initial basic skeletal framework to each human in the scene, and then enhances that skeleton with a full inverse kinematic skeleton model (FIGURE 3). Each joint in the skeleton can be tracked as it moves and rotates through three-dimensional space (FIGURE 4).

Application and interface developers can access the data from the scene at multiple levels – the scene level (with background removed), the basic skeleton level, and the advanced skeleton level, using the APIs provided with Beckon. Each joint can be tracked and these analog movements can be mapped to the device or application. Beckon also features a powerful gesture layer, which allows specific gestures – a sequence of movements or rotation of the body's joints – to be defined as events. Far more powerful than tracking, gestures allow for much more precise and detailed user control.

Beckon Components

The **Beckon Engine** processes the raw depth map data into intelligence that can be used by devices, applications and games. The engine runs on Windows and multiple Linux variants, and has been optimized for a variety of processor environments, including the Texas Instruments OMAP 3530 and DM3730 SoCs and the Intel 41xx family of embedded processors. The Beckon Engine supports both full-body and basic (4-point tracking modes), and can track 5 or more skeletons simultaneously. The Beckon Engine supports a variety of camera positions, and is able to analyze the scene when the camera is level with the user, or situated above them, looking down.



The **Beckon APIs** provide interfaces for the most common development languages to access the scene intelligence from the Beckon Engine at the shadow, skeleton, or gesture level. The included APIs support C++, C# (including Mono) and Flash, as well as plug-ins for the .NET framework and the Unity and OGRE game engines.

The **Beckon Gesture Packs** provide predefined gestures which include all of the control functions needed for most applications. The Basic and GUI gesture packs provided with the basic SDK license include the most common user interface and gaming gestures. Other add-on packs are available for specific types of games and applications.

The **Beckon Gesture Authoring Toolkit (GAT)** is a rapid development application that utilizes machine learning to enable the creation of new gestures without ever writing a line of code. To utilize the tool, developers act out the gesture multiple times in front of a depth camera which records their movements. After the start and end of each gesture are marked, the toolkit does the rest. The Beckon GAT is offered as a separate, add-on product to the Beckon SDK.

Target Platforms and Applications

Beckon is being used to power gesture-controlled interfaces across a wide variety of hardware and software products. Some of the key applications and target platforms for Beckon include:

- Interactive Digital Signage
- Security and Surveillance Systems
- Medical and Physical Therapy Systems
- Human-Machine Interaction
- Robotics Control
- People Counting and Classification
- Body Pose Analysis
- Telepresence and Videoconferencing Systems
- Augmented Reality
- Motion Capturing
- Games and Consumer Electronics
- Information Kiosks
- Fitness Equipment
- Home Automation
- Training Simulation Systems
- Vending Machines

System Requirements

Component	Beckon Engine and SDK	Beckon GAT
CPU	Intel Pentium 4, 1.2 GHz Intel Atom, 1.2 GHz AMD Athlon, 1.2 GHz	Minimum: Intel Core2 Duo, 2.67 GHz Recommended: i7, 2.8 GHz
Memory	256 MB	4 GB
Operating System	Windows XP Professional (32 bit) Windows 7 (32 bit and 64 bit)	

About Omek

Omek is transforming the way people interact with their devices and applications, by providing tools and technology that enable manufacturers and software developers to add gesture-based interfaces to their products. Omek's gesture recognition and body tracking software is being incorporated into TVs, set-top boxes, computers and peripherals, smartphones, interactive signs, and medical and fitness devices – and into the content and applications that run on these devices. Omek's tools support a broad range of processors, operating systems, and development environments – giving customers the flexibility to take advantage of the latest technology, while maintaining portability for their applications. A privately held company, Omek is headquartered in Bet Shemesh, Israel, and has offices in San Francisco, Taipei, and Tokyo. For more information, visit www.omekinteractive.com.

THE OMEK DIFFERENCE

Support for Multiple Development Environments – Omek's

development tools provide support for the most popular programming languages and game engines, including C++, C#, Mono, Flash, Unity, and more – enabling our customers to develop in the environments they are most comfortable with.

Support for Automated Gesture

Definition – Omek gives developers the only automated tool for turning body movements into gestures recognizable by their applications, without any coding – saving hundreds of hours of development time.

No Calibration Required – Beckon is able to find and calibrate the size of each individual being seen by the depth camera, without requiring them to stand in an awkward pose, which makes your devices and applications much more user-friendly and intuitive.

To Learn More about Beckon – Visit www.omekinteractive.com.

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