iiisu™
by SoftKinetic

The Interface is You.
SoftKinetic’s award-winning iisu™ is a complete development and deployment gesture recognition platform for creating innovative applications for Interactive Digital Entertainment, Serious Games, Rehabilitation and Fitness, Gesture-controlled Interfaces, Consumer Electronics and other areas that benefit from natural interaction with digital content. iisu is compatible with all 3D depth sensing cameras and allows application developers to build immersive, transparent and intuitive interfaces.

It is possible, with a single 3D depth-sensing camera, to capture users’ movements in real-time, with high-accuracy and high-resolution. Each pixel produced by the 3D sensor is characterized by its depth - the distance between the camera and the point of the object corresponding to that pixel. Extracting that depth information offers an incredible array of possibilities for developing new interactive applications based on immersive, transparent, intuitive and natural user experiences.

SoftKinetic’s iisu insulates application developers from the low-level technicalities of the 3D depth-sensing cameras and dramatically reduces the development cycles by offering a complete set of tools and APIs, including:

**Camera Configuration:**

iisu supports all 3D depth-sensing cameras. The developer specifies which type of camera is in use, and iisu automatically loads the appropriate device driver and transforms the proprietary 3D signal into a standardized format. The developer is totally insulated from the details of the camera and can concentrate exclusively on application development.

**Classification & Filtering**

iisu filters out the signal’s noise then recognizes and classifies the various elements in the scene (main user, other users, background artifacts, etc.), and presents the developer with a simplified, organized view of the scene.

**User**

Identifies the main user and computes statistical data, including user height (independent from user position), body and torso orientations, center of mass, chest, pelvis direction, etc.

**Volume**

Provides the user volume-information with configurable resolution - very useful for physical interaction within the virtual space.
Body Parts
Identifies and tracks the movements of the users’ body parts and provides a superior tracking robustness and occlusion management. iisu offers full-body configuration, e.g. for building full-body immersive applications for gaming, fitness or rehabilitation but for other purposes such as digital signage, medical equipment (in sterile rooms) and home media centers where interface control can be more important. iisu can also be set up to track upper-body parts such as hands and fingers. iisu™ is delivered with iisu™ UI (see below) which are a set of specific gesture detections customized for interface applications.

Full Body Skeleton Extraction System
The 3D avatar system enables the creation of realistic, third-person avatars. Access to the full-body-skeleton information complements the body parts elements. The system can be used by developers and graphic designers to animate 3D models in real-time using industry standard methods such as mesh skinning.

UI
iisu provides dedicated features for UI navigation (e.g. TV, Game menus, Web Interfaces) including hand gestures recognition like pointing, clicks, push, swipes, waves, circles. No calibration required, supporting multiples user through extremely robust tracking.

Multi-user & Scene Management
iisu includes an advanced multi-user tracking system of up to four players, with volumetric information, individual body parts and full body skeleton extraction. In order to help the management of many users iisu™ offers an advanced and programmable scene management system with which the users can configure a large array of tailor-made user detections and tracking modes.

Interaction Designer
Interaction Designer is an easy-to-use application allowing game and application designers to prototype and rapidly add gestures for their applications. Test and refine motions either in real-time (using depth sensing camera) or through pre-recorded videos (SKV videos, see “Movie Recording” section for more).

Control Pack
Compatible with Interaction Designer, a solid set of out-of-the-box gestures, for the development of most gesture based games and application interactions.

Movie Recording
iisu allows you to record data into a movie file that can be used as a data source. This feature is especially useful for developers who need to test a specific move sequence, as they will not need to perform it several times in front of the camera.

Performance & System Architecture
iisu allows programmers to customize the processing tasks to gain memory or performance. They can for instance disable the levels of the hierarchy that their application does not require or clip the scene. Thanks to the system architecture iisu also facilitates the adaptation to platforms with limited processing resources in consumer electronics and embedded systems.

Product Engineering
iisu libraries are written in standard C++ and have been optimized for high performance and low memory usage. iisu is designed so that it can easily be adapted to other hardware platforms.

SUPPORTED DEVELOPMENT ENVIRONMENTS
Developers can use C, C++ or C# APIs in synchronous (request/reply) or asynchronous modes. iisu can be adapted to any 3D game engine with minimal efforts.

IISU™ CAN BE BRIDGED TO A VARIETY OF INTERNET-BASED DEVELOPER ENVIRONMENTS
/ Adobe Flash - Access all iisu SDK functions in Action Script.
/ Unity3D (V2.5+) - Retrieve and send data in real-time using mono-native support of Unity platform.

CLIENT TECHNICAL SERVICES AND PROFESSIONAL TRAINING
SoftKinetic provides professional training, technical consulting, 3D graphics, application and game development services to assist our customers and partners with their product design, development and testing.

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