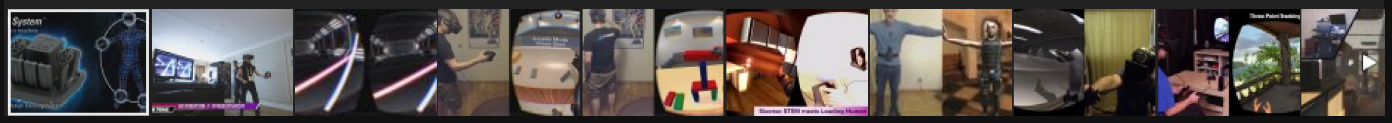
STEM System: The Best Way to Interact with Virtual Worlds



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For developer information: dev@sixense.com

Full Immersion

The STEM System™ is a wireless, motion tracking platform for video games, virtual reality (VR), and more. It enables players to interact naturally and intuitively with games by tracking full position and orientation at all times, whether at the desktop or throughout the entire living room.

This is the next big step in Sixense motion tracking technology – with advancements including longer range, wireless operation, and better tracking performance at all ranges. The STEM System will support up to five wireless motion trackers, or STEMs, for full position and orientation tracking of the head and hands, the entire body, or other configurations.

Open Platform

In order to foster a robust developer community, the STEM System will be an open platform for creators of both software and hardware consumer products. Developers will be able to create games with virtually no restrictions. The STEM System will give developers the flexibility and autonomy they need to create motion-tracked titles complete with motion-tracked peripherals of their own design.

The second-generation Sixense SDK takes advantage of the STEM System's extended capabilities and also provides backward compatibility with products and games powered by earlier generations of Sixense motion tracking technology, including the Razer Hydra. The SDK is available for Windows, Mac OS and Linux.

Support for Any Game

Sixense MotionCreator is a powerful software application that delivers motion gameplay to virtually any published PC game. It allows you to play using the natural, intuitive motion control provided by the STEM System. The game itself is never “aware” that any new device is being used to play the game since Sixense MotionCreator emulates the inputs for which the game was designed.

Hundreds of games are already supported by Sixense MotionCreator, so a huge catalog of titles for the STEM System will be available when it ships. Users can create profiles that convert the STEM System’s motion tracking, button, analog sticks, and analog triggers to mouse and keyboard commands. And anyone can use and customize Sixense MotionCreator, even those without game or software development skills. Sixense MotionCreator is available free to users of the STEM System.

Developer Support

The Sixense Tuscany Demo adds motion input to the standard Oculus Rift Tuscany demo. We modified the demo to demonstrate the STEM System’s ability to drastically enhance the immersive experience delivered by VR applications. For the first time, this allows users to interact with the virtual world intuitively and naturally with their head, hands, and feet. No development experience is required to use the demo.

We will release the source code for the Sixense Tuscany Demo for all developers. It includes the following features to enable STEM System developers to quickly and easily add motion input to their own applications:

– Reference implementation for adding motion-tracked hands to a Unity VR application
– Full body avatar with inverse kinematics
– Example physics implementation for hands and feet
– Sixense Player Controller prefab decoupling the head from the body. Drag and drop into your scene
– Sixense Tuscany Demo scene

Technology and Features

Sixense developed the electromagnetic motion tracking technology that is used in consumer products worldwide. The STEM System represents the next generation of this technology, with a new architecture that delivers longer range, lower latency, and better performance at all ranges.

Wireless motion tracking

Freedom of movement for any activity, from desktop competitive gaming to VR with full body tracking and locomotion.

Five tracking points

Allows tracking of all four limbs plus the head – or any other configuration.

Extended range

Optimized performance from the desktop to the living room, with an 8-foot radius (16-foot diameter) range from the Base.

Backward compatibility via the Sixense SDK

Uses an updated version of the Sixense SDK (for Windows, Mac OS and Linux) that also supports games and applications developed for the Razer Hydra.

Performance specs

Our technology uses an A/C electromagnetic field to determine the position and orientation of each STEM (up to five per system) relative to a stationary base. The STEM System allows an uninterrupted and consistent user experience unlike any other motion control system.

No drift

Because Sixense technology does not rely on inertial sensors (gyroscopes and accelerometers) for position tracking, the measured position of each STEM will not drift over time, whether you move quickly, slowly, or not at all.

Low latency

Patented Sixense latency technology is used in the STEM System – giving it the lowest latency of any wireless consumer motion control system.

One-to-one tracking

This means that the STEM System tracks both position and orientation on all three axes for each STEM. These data are very easy for developers to incorporate into software applications via the Sixense SDK.

No line of sight required between STEMs and the Base

You have the freedom to turn around, put the STEMs in your pockets or stand behind your couch – all without interrupting the tracking performance.

Key Components

STEM Base
Contains the coil that serves as the stationary reference for each STEM. Includes charging docks for two controllers and three STEM Packs, plus three additional USB charging ports.

STEM Controller
Each wireless STEM Controller will feature a trigger, a bumper, buttons and analog joystick to allow maximum flexibility for development of any genre of game. Controllers will also feature haptic feedback.

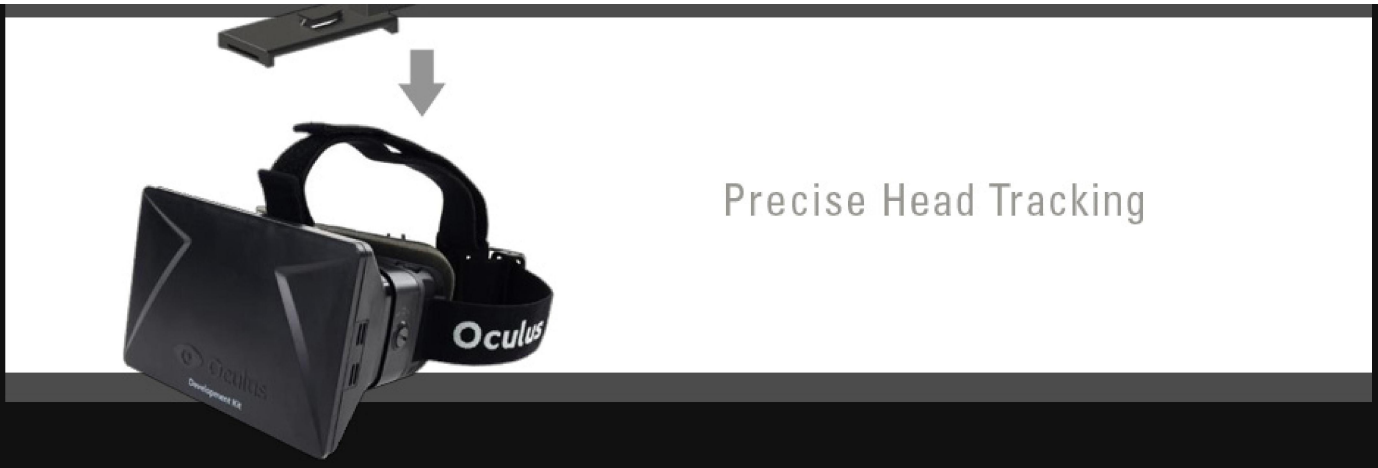
STEM Pack
These enable STEMs to be used purely for motion tracking. Each STEM Pack contains a STEM dock, a rechargable battery to power the STEM, a clip and an attachment for a bracelet. STEM Packs will also feature haptic feedback.

We're always listening to both users and developers and we're working hard to ensure that all features in the STEM System help you develop faster and play better. We set the bar for performance to the highest consumer standards. Developers won't be restricted in what they create and enthusiasts and early adopter backers will get the best possible motion control system.

Great for VR

Any distraction or intrusion from the "real world" degrades the virtual reality experience. Traditional input devices such as the mouse and keyboard or gamepad are unnatural in VR, serving as constant reminders to users of the world outside the virtual environment. Sixense-powered wired controllers, such as the Razer Hydra, provide that "Aha!" moment when the user puts on the VR headset, and then looks down and sees his or her virtual hands moving exactly as they do in real life.

Today's rapidly growing community of VR developers realize that the controller needs to be improved in order to deliver the uninterrupted and immersive experience they're after. The STEM System goes way beyond, freeing you from wires and opening up the entire living room.



STEM System™ Frequently Asked Questions

- Will the STEM System's functionality and features for Kickstarter differ from the consumer version?
- Is the tracking performance better than the Razer Hydra?
- Will the STEM System include haptics? Will it be integrated with Tactical Haptics?
- Will the STEM System work with the Oculus Rift?
- Will the STEM System work with the Virtuix Omni?
- Are there separate left and right controllers or are the controllers all identical?
- Will I be able to order more STEMs, Controllers or STEM Packs later if I decide that I need more?
- What will be the battery life for the controllers and STEM Packs?
- What is happening with MakeVR, the 3D modeling application that you announced in the spring?
- What games are supported by the STEM System?
- How can I play Left 4 Dead 2 like I see you playing in the Kickstarter video? I've used my Hydra with L4D2 plenty of times and never could wield my weapons like that.
- How much overhead processing is required by the host computer to compute the motion tracking data?
- Will the STEM System support CryEngine 3?
- Does the magnetic field of the STEM System affect other objects in the area?
- Why is the STEM System's magnetic field safe?
- Is the STEM System compatible with the Razer Hydra?
- Will the STEM System include the ability to change frequencies via the SDK?
- Are you planning to provide a wired structure with the ability to connect to a single high-capacity battery?
- How much is international shipping?

NEWS

more...

Sixense demo STEM at CES 2015 and blow our minds
"Using the STEM - I can never go back" Tweak Town

Sixense's motion-controlled VR lightsaber is just as much fun as it looks
The Verge

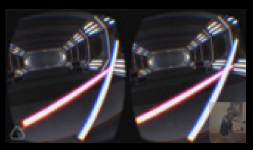
I Went Shoe-Shopping In Virtual Reality
"...the part that's hard to explain, is how natural it felt to reach out, grab things, and examine them in this virtual environment. How much better it felt than looking at flat images of products on a website." Gizmodo

Sixense STEM adds full motion tracking to Samsung Gear VR
"This means the introduction of advanced features that a pure head mounted tracker like the Gear VR could never hope to attain on its own..." Pocket Gamer

Motion Controllers Make Great Virtual Reality Lightsabers
"It's one of the most obviously fun, relatable things to do with motion controllers, even for people who are otherwise skeptical of VR." The Verge

MEDIA

more...

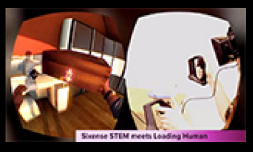


Awesome VR Lightsabers
The lightsaber or sword is the true test for a one-to-one motion tracking system in VR...

Advanced Weapon Mechanics
An example of common game interactions with a focus on full-simulation weapon mechanics.

Easy-to-build VR Interactions
We showcase interactions, easily reproducible through the SixenseVR SDK.

Introducing the STEM System
A motion tracking system for the most intuitive interaction with video games, virtual reality, and more.



Loading Human with STEM System
Preview of Untold Games's Loading Human played with our STEM System. We were impressed with the early integration!

Home