Virtual Reality for the Masses

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Virtual reality is used in many military, scientific, and industrial applications, ranging from training astronauts to designing automobiles. Despite an eager market, the lack of high-performing products at consumer-level prices has relegated entertainment VR applications to something you'd find in an amusement park or still languishing as a prototype. However, the announcement of several new high-performance VR devices aimed at the consumer market suggests that we might soon have more immersive gaming options.

Oculus Rift

Launched through Kickstarter in 2012, Oculus VR raised nearly US $2.5 million toward the development of their prototype VR headset, the Oculus Rift (see Figure 1). With a 100-degree field of view stretching beyond your peripheral vision, stereoscopic 3D viewing, and low-latency six-degree-of-freedom head tracking, this head-mounted display (HMD) promises a truly immersive gaming experience. Although the commercial version has yet to ship, this concept was so appealing to Facebook that it acquired Oculus VR for approximately $2 billion in early 2014. Developers can get their hands on the second-generation Oculus Rift Development Kit for $350, but the commercial version isn't expected to be available until sometime in 2015.

More information is available at www.oculusvr.com/rift.

Morpheus Awakes

Sony recently announced Project Morpheus, a VR HDM for PlayStation 4. The prototype demonstrated by Sony at the 2014 Game Developers Conference supports 1080p resolution and a 90-degree field of view. The device can accurately track head orientation and movement using the PlayStation Camera combined with built-in accelerometer and gyroscope sensors. The HMD also provides 3D stereo audio and will work with existing controllers such as the PlayStation Move.

More information is available at http://blog.us.playstation.com/2014/03/18/introducing-project-morpheus.

Gaming with a Shape-Changing Controller

Also launched through Kickstarter, although with significantly less funding than the Oculus Rift, the ANTVR KIT is a cross-platform VR gaming system. The system's HMD supports a 100-degree diagonal field of view and stereoscopic 3D viewing. However, the more interesting element is likely the controller, which users can quickly convert from a standard controller configuration to a gun, a sword, or even a steering wheel.

Unlike the Oculus Rift, which will work only with games created specifically for it, and Project Morpheus, which will work only on PlayStation 4, the ANTVR KIT is designed to be compatible with a variety of gaming hardware. The HMD and controller are proprietary technology. However, ANTVR made the designs and firmware for the wireless receiver, which controls communication

Figure 1. With a 100-degree field of view, stereoscopic 3D viewing, and low-latency six-degree-of-freedom head tracking, the Oculus Rift head-mounted display promises a truly immersive gaming experience.

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Figure 2. With the Virtuix Omni VR treadmill, users can walk, run, jump, and strafe through virtual environments.

between the HMD, controller, and gaming console, open source. This lets developers create new controllers or use the ANTVR KIT to control new devices.

More information is available at www.antvr.com.

This Could Boost Your Heart Rate

Providing a realistic audiovisual experience through an HMD is critical to VR gaming, but intuitive player motion is also a key element. The Virtuix Omni offers a solution with its VR treadmill (see Figure 2), which is scheduled to ship in fall 2014. With a preorder price tag of $499 and a 45-inch diameter, this supersized game controller is aimed at dedicated gamers. The unit's base is essentially a shallow bowl with a grooved, low-friction surface. While wearing a pair of special Omni shoes that increase stability and a harness for safety, users can walk, run, jump, and strafe through virtual environments.

More information is available at www.virtuix.com.

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