MotionNode

Application Note

Virtual Reality Toolkit

The MotionNode Inertial Measurement Unit (IMU) includes software for easy integration with Virtual Reality (VR) toolkits. This document describes and implements a VR orientation tracker with the MotionNode IMU. For this example, we will use the Vizard VR toolkit by WorldViz LLC (www.worldviz.com).

Vizard Toolkit

Vizard is commerically available from WorldViz. They also offer a downloadable trial version so you can try it out. Install the toolkit to continue.

Once the Vizard toolkit is installed and running, open the *run_vizard.py* file from the application note files. This is a Vizard script file that sets up the MotionNode device and creates a simple graphical VR application. In this case, the MotionNode is used as a head tracker. The view changes based on the current orientation of the MotionNode.

Tracker Setup

The MotionNode tracker is configured with the Vizard settings file *vizsetupcfg.py* in the same folder as the main script file. The confiugration file loads a tracker plugin and associates the orientation data from the MotionNode with an object in the VR scene.

In this example, Vizard loads the Virtual Reality Peripheral Network (VRPN) plugin. The VRPN is a transparent interface between tracker hardware and VR systems. VRPN is an open source

project and available from UNC-Chapel Hill (www.cs.unc.edu/Research/vrpn/). The application note files include a VRPN server application configured for use with a MotionNode IMU.

To run the Vizard head tracking scene the VRPN server must first be running. Simply launch the on the *vrpn_server.exe* application to start the tracker data interface. Of course, the MotionNode IMU must also be plugged in at this time.

Head Tracking

Once the orientation tracker stream is available run the Vizard application. There is a *Run* command in the top toolbar. The VR scene is simply a plane with a grass colored texture. The MotionNode IMU controls the view as a head tracker.

This is a basic example but easily extended to more advanced scenes. Multiple MotionNode IMUs may be used to control any number of objects in the scene.

Checklist

1. Install Vizard toolkit from WorldViz

2. Start MotionNode IMU

3. Launch VRPN server from application note files

4. Run head tracking Vizard script from application note files

---

GLI Interactive LLC   Telephone: 206-201-2708
89 Yesler Way, Suite 2   Email: info@motionnode.com
Seattle, Washington 98104, USA   Website: www.motionnode.com