OPEN INVENTOR CORNER

Fun With Draggers: Building an Interactive Track Light

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In the May/June issue of *Developer News*, we discussed *engines*, *animating nodes*, and the *field-to-field connections* provided with Open Inventor 2.0. In this issue we discuss *draggers*, Inventor objects which you can move by click-dragging with the mouse. In particular, we show how the combination of draggers and field-to-field connections make it easy to create scenes with built-in user interfaces.

This article is a case study. It presents a standard Inventor file of a room with two track lights. Each track light is built of moveable draggers that allow you to control the parameters of a **SpotLight**. The file may be read into any Open Inventor application such as ivview or SceneViewer.

Everything needed to create this file comes with the inventor_eoe subsystem of IRIX 5.2. The developer's option is not required. Many of the techniques used in this article are described more fully in *The Inventor Mentor*, published by Addison-Wesley (ISBN 0-201-62495-8).

An Interactive Track Light

Figure 1 shows the device we are going to build. The *plank* can be click-dragged left and right, carrying the cylindrical *socket* and conical *bulb* with it. The socket can be moved forward and back along the plank (the bulb will follow). Click on the bulb and you can rotate it to point the SpotLight in any direction.

In addition, two panels are mounted on the rear wall, one for each track light. The *dimmer* (a small cube which slides up and down) controls the intensity of the spotlight. Similarly, the *spreader* (a small cone to the right of the dimmer) changes the beam spread.

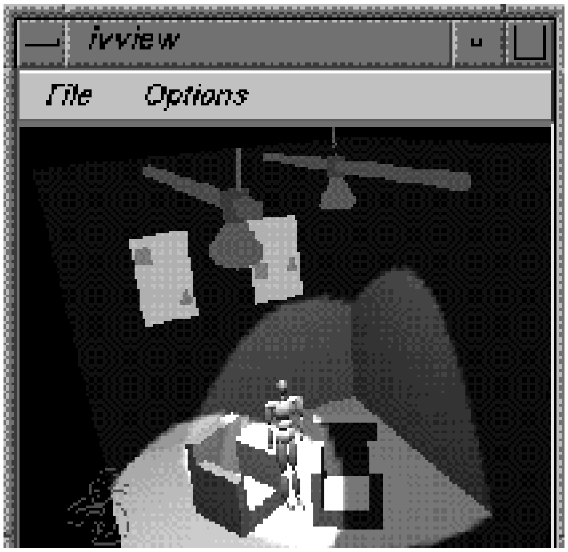

FIGURE 1. Two Track Lights In a Room

What's a Dragger Do?

Draggers are nodes you click and drag with the mouse. Each class of dragger has a shape you can pick, a unique way of moving, and a field (or fields) that reflects that motion. To build the track light, only two classes of dragger are needed, **Translate1Dragger** and **RotateSphericalDragger**.

Translate1Dragger translates in a line along the X direction of its local space. It has a *translation* field that is constantly updated whenever you move the dragger. **RotateSphericalDragger** rotates freely in all directions. Its *rotation* field always reflects its current orientation.

Beauty Makeovers -- Give Your Dragger A New Look!

It's easy to change the shape of a dragger. That's why four different looking parts of the track light (plank, socket, dimmer, and spreader) can all be **Translate1Draggers**.

All draggers are *nodekits*. To change a part of a nodekit in an Inventor file, type the part name followed by the scene graph you want to use. To change the shape of a **Translate1Dragger**, you need to change two parts, "*translator*", and "*translatorActive*." The first part, "translator", is the geometry you select to translate the dragger. The second,