

Additional input for OSG

Open Scene Graph can support almost any input - but generally this will involve you programming it!

It is generally a good idea to add a simulator in your code so that you can test your application even if you don't have the appropriate input device connected.

For this session you have a variety of code samples to test out, and then you should experiment with a range of devices and try and be as creative as possible with their use - at this stage you are exploring possibilities! You will need to take it in turns to use some of the devices, so you may need to work these sections in a different order.

Phidget RFID input

To use the RFID's you need an RFID reader which plugs into the USB port on the computer, and one or more RFID tags.

There are a number of ways to include RFID input in your project. I have supplied a simple example which just reads the tags and displays them in the console window. It's up to you to do something more interesting with them! Don't worry about the complexity of the code - you can see that the program itself is very simple, and the only bit you need to add to is the details of the main program and the tag *handler* function.

- You will need to create a project with the code from the supplied *RFID example.cpp* file as your main program.
- You will also need to add the *phidget21.h* and *phidget21.lib* files to your project folder
- In the project properties you will need to add *phidget21.lib* to the linker input
- Once you have the project running, see if you can add RFID tags to an OSG project. You could try linking two tags to two different OSG objects, and making them appear when the tag is read and disappear when it is removed.
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Phidget Accelerometer

The accelerometers that we have available for you to use are three axis accelerometers which measure ± 3 gravities. They attach directly to the USB port of your computer.

Index 0 is the x-axis, 1 is the y-axis, and 2 is the z-axis. Please see the data sheet for more information.

I have supplied a simple example which reads the accelerometer and connects it to the movement of an object. NOTE this example does not combine the tilts on 3 axis and is NOT correctly calibrated - this part is your job! You will need to do some background research to work out how to do this! You will also need to think about calibrating the accelerometer data into angles (see the data sheet for help with this).

- You will need to create a project with the code from the supplied *Accelerometer example.cpp* file as your main program.
- You will also need to add the *phidget21.h* and *phidget21.lib* files to your project folder
- In the project properties you will need to add *osgd.lib* *osgviewerd.lib* *osgdbd.lib* *osgUtild.lib* *osgGAd.lib* *phidget21.lib* to the linker input and add the library and include paths for OSG

Once you have the project running, see if you can do some background work to find out how to combine the 3 axes of rotation. If you can do this, you would be able to calculate a direction vector, which you might use to aim or otherwise direct an object in your scene.....

Phidget 8/8/8 interface kit and sensors

The interface kit supports a wide range of input and output. The basic code to read them is the same for each. However, you will need to calibrate each one for your particular program. I have provided an example which uses a slider for object movement, a force sensor to squash a virtual object, a switch to turn the slider on and off, and an output to light an LED when the slider is used. This gives an example of each type of input and output - the rest is down to calibration on individual sensors.

- You will need to create a project with the code from the supplied *Interface kit example.cpp* file as your main program.
- You will also need to add the *phidget21.h* and *phidget21.lib* files to your project folder
- In the project properties you will need to add *osgd.lib* *osgviewerd.lib* *osgdbd.lib* *osgUtild.lib* *osgGAd.lib* *phidget21.lib* to the linker input
- You will need to add the *Phidgets.cpp* file to your source files, and the *Phidget21.h* to your header files, and add the library and include paths for OSG

Those of you who want to use the treadmill or trackers, I will supply some sample code and library files for you to work with once you start your projects.