Subject: Re: coordinates in threedimensional object graphics ?
Posted by Klemens Barfus on Tue, 25 Oct 2005 08:35:54 GMT
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Hi Rick,

thanks for your very helpfull answer !
I think this will help me a lot !

Greetings,

Klemens

Rick Towler wrote:
>
>
> Klemens Barfus wrote:
>
>> Hi Rick,
>>
>> its exactly the point you mentioned, that the object rotates out of
>> the view.
>> The volumes I want to visualize should fit all in the same way in the
>> view though they have different ranges in x, y and z direction.
>> When I rotate them around z and y axis I have to fit the
>> viewplane_rect to get for example a certain frame around the object.
>
>
> O.K. This is easy :)
>
> Rotations are applied about the origin to the world coordinate system.
> Consider an object with extents 1 by 1 by 1, centered at [5,0,0]. If
> you rotate the world coordinate system 90 degs about the Z axis, your
> object will now be at [0,5,0]. If you had a view 2x2 units centered at
> [5,0,0] the object would be out of view after the rotation.
>
> Translate that same object to the world origin. Now when you apply the
> rotation, the object doesn't move. It starts at [0,0,0] and ends at
> [0,0,0]. If you had your view centered about the origin, you would see
> the object both before and after the rotation.
>
> The general solution involves finding the center and extents of your
> objects then translating the objects such that they are centered about
> the origin. RSI provides the get_obj_range function (found in
> C:\Program Files\RSI\IDL61\lib\utilities) which does just this. For
> bonus points you can use the extents to determine the width and height
> of your view.
>

> If you have multiple objects you need to rotate, the approach is to
> translate them to the origin, rotate, then translate them back.
>
> If you are building a viewing system you may want to consider using my
> camera object. If you're just building a simple viewer it will be
> overkill, but if you plan on extending it using the camera will give you
> a lot more flexibility.
>
> You can download it here:
>
> http://www.acoustics.washington.edu/~towler/RHTgrCamera.html
>
>
> -Rick
>
>
>>
>> Rick Towler wrote:
>>
>>>
>>>> I play around with object graphics and try to build a routine which
>>>> is able to visualize 3d objects of different sizes in th same way.
>>>
>>>
>>>
>>>
>>> XOBJVIEW does this. I believe there is an object-ified version
>>> available from the RSI user contrib library which probably adds a
>>> good bit of flexibility.
>>>
>>>> When I define the viewplane_rect and the zclip of my view,
>>>> everything works fine before I rotate the view. Then the coordinate
>>>> system is not the coordinate system of the defined axes anymore.
>>>
>>>
>>>
>>>
>>> I'm not sure exactly what your issues are. When you rotate the
>>> object does it rotate out of the view?
>>>
>>>> Is there an easy way to calculate the coordinates for viewplane_rect
>>>> and zclip from the coordinates of the rotated axes ?
>>>
>>>
>>>
>>>
>>> While there probably is a way to do this, you'd be working backwards.
>>> It is best to think of the view as fixed and (unless you are

>>> "zooming") the viewplane_rect as fixed. You operate on the objects
>>> contained within the view, manipulating their transforms to yield the
>>> desired results. So your question is regarding transforming your
>>> models in some way. Maybe you can add some details.
>>>
>>>
>>> -Rick
