Jitter Physics

The C# Physic Engine

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Helix Toolkit and Jitter

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Helix Toolkit and Jitter

by **imekon** » Sat Sep 27, 2014 12:15 pm

I've been looking at the Helix toolkit and Jitter. Helix is a set of extensions on top of WPF 3D which makes it easy to create a 3D app within a WPF application.

As it's a Windows application, and not a game, there's no game loop. So I used a BackgroundWorker (i.e. a thread):

Code: Select all

```
private void DoJitterWork(object sender, DoWorkEventArgs e)
{
    while (!jitterWorker.CancellationPending)
    {
        world.Step(1.0f / 60.0f, true);
        Dispatcher.BeginInvoke(DispatcherPriority.Normal, new
ExecuteDelegate(UpdateVisuals));
        Thread.Sleep(1000 / 60);
    }
}
```

I've gotten two simple applications to work - one with a sphere dropping onto a surface, and another with cloth. What I've noticed is y/z is swapped. Taking position from the physics world into the visual is good but I'd need rotation as well.

In the cloth sample, I'm having issues with translate - here's the code I'm using:

Code: Select all

```
clothBody = new SoftBody(20, 20, 1.0f);
clothBody.SelfCollision = true;
clothBody.TriangleExpansion = 0.1f;
clothBody.VertexExpansion = 0.5f; ;
clothBody.Material.KineticFriction = 0.9f;
clothBody.Material.StaticFriction = 0.95f;
clothBody.VertexBodies[0].IsStatic = true;
clothBody.VertexBodies[9].IsStatic = true;
clothBody.VertexBodies[19].IsStatic = true;
clothBody.SetSpringValues(SoftBody.SpringType.EdgeSpring, 0.1f, 0.01f);
clothBody.SetSpringValues(SoftBody.SpringType.ShearSpring, 0.1f, 0.03f);
clothBody.SetSpringValues(SoftBody.SpringType.BendSpring, 0.1f, 0.03f);
clothBody.Translate(new JVector(0.0f, 5.0f, 0.0f));

...

MeshBuilder builder = new MeshBuilder(true, true);
var points = new List<Point3D>();
for (int y = 0; y < 20; y++)
{
    for (int x = 0; x < 20; x++)
    {
        points.Add(new Point3D(x, 0, y));
    }
}
builder.AddRectangularMesh(points, 20);
clothMesh = builder.ToMesh();
var material = MaterialHelper.CreateMaterial(Colors.Pink, 1);
var geometry = new GeometryModel3D(clothMesh, material);
geometry.BackMaterial = material;
var model = new ModelVisual3D();
model.Transform = new TranslateTransform3D(0.0, 0.0, 5.0);
model.Content = geometry;
viewport.Children.Add(model);
```

The transform for Jitter is 0, 5, 0 and for the visual is 0, 0, 5. If I try 10 or 15, it seems to be doubling the result, not quite sure what I'm doing wrong here!
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Joined: Sat Sep 27, 2014 9:22 am

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