**Explosion debris with some physics.**

Welcome to this very short tutorial about creating explosions with debris flying around using physics.

What we need is if an object is hit or touched, it should explode in several parts that fly and bounce away. I’ll use the physics that come with the 3dgs engine. Let’s start this shall we ?

Important is we include the physics script into our script so add this line :

***Line 5***

#include <ackphysx.h>

This will make sure the physic scripts comes with our game.

Then the main function will need these lines :

***Line 39-47***

function main()<<<<<< main function

physX\_open();<<<<<open the physics script that is use (remember you included it)

pX\_setccd(1);<<<<this is set so the level blocks have collision with physic objects

video\_set(1024,768,0,0); <<<<screen resolution settings.

level\_load("explo.WMB");<<<<< level to load

random\_seed( 0 );<<<<<< this is needed for our physic function. Don’t worry we get there

Now we will create a function so any object with that function will become a physic object.

***Line 50-64***

ENTITY\* shard; <<<< pointer to the shard model

function create\_shard()<<<<< name of the function

set(my,BRIGHT | TRANSLUCENT);<<<< make the model bright and transparant

pXent\_settype(my, PH\_RIGID, PH\_SPHERE); <<<<<<this entity behaves like a sphere

pXent\_addforcecentral ( my, vector(sign(random(2)-1)\*random(100),sign(random(2)-1)\*random(100),0));<<<<we add force and random direction for the physics object

pXent\_setfriction (shard,50); <<<<set the friction on the ground

pXent\_setdamping (shard,200,200); <<<<<set the damping

pXent\_setelasticity (shard,3); <<<<set the elasticity

wait(-3);<<<<wait 3 seconds

ent\_remove(me);<<<<<< remove the physic object

I created an action for the pyramid model. It will make the pyramid invisible then create all shard parts that will have the create\_shard function. Yes that’s right they will become physic objects

***Line 67-101***

action pyra\_explode()<<<<<name of the action

set(my,TRANSLUCENT);<<<<make it transparant

my.alpha = 50;<<<<set alpha to 50

while(1)

wait(-10); <<<<< wait 10 seconds.

snd\_play (glass\_snd, 100, 0);<<<<<play breaking glass sound (or any sound you want)

set(my,INVISIBLE);<<<<make the model invisible

ent\_create("explo2+16.tga", vector(my.x,my.y,my.z+50), sprite\_played);<<<create explosion sprite

Then we create all shard part models and give it the create\_shard function

ent\_create("shard1.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard2.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard3.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard4.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard1.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard2.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard3.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard4.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard3.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard1.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard1.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard2.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard3.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard4.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard1.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard2.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard3.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard4.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard3.mdl",vector(my.x,my.y,my.z+100),create\_shard);

ent\_create("shard1.mdl",vector(my.x,my.y,my.z+100),create\_shard);

wait(-3); <<<<< wait 3 seconds

reset(my,INVISIBLE);<<<<make model visible again

wait(1);

Now this pyra explode runs in a loop (Code is after the while) if you did all my previous workshops you should understand how to make it explode on a hit or impact bullets and so on.

Remember this line in the main : random\_seed( 0 );

It will make sure that the parts never bounce of the same direction but always are scattered random. Even these parts should be able to impact other models.

So there you have it. Some cool explosions and you learned a little how to use physics.

You can change and use it how you like. Make the shards fade out, bounce more or let them make sounds on collision. You can use this way of doing it on for example exploding walls,vehicles and so on ☺

Happy debris time ☺

Rene Pol.