

Fountain simulator in the particle system

Team Member:

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Proposal:

In this project, I will use a particle system to simulate a fountain. In this particle system, I will add physical effects such as gravity, wind, and viscosity to control the particles. When the fountain particles hit the ground, I add a rebound effect. Finally, I will design a fountain pool.

Description:

1. How to build a particle emission system and what initial properties should be set for particles.
2. When particles are emitted, how to control their movement.
3. How to adjust the movement of particles if physical factors are added.
4. How to achieve the collision effect.
5. How to draw some basic models.

Importance:

The particle system is a system made to simulate many natural phenomena. There are many applications in the field of animation and games. By starting from the basic fountain simulation, I will have a deeper understanding of the particle system.

Goals:

1. Implement a particle system with about 1000 particles.
2. Before particles emitted by emission system, Every particle is set the start position, the direction, the initial velocity, terminal age, and the color.
3. Every particle in moving can be affected by physics (gravity, wind, viscosity, friction)
4. Every particle which hit the ground will have a bounce effect.
5. Building a round pool.

Work breakdown:

I plan to divide this project into five parts to complete.

1. Building a particle emission system, and some needed model. (2-3 days)
2. Simulating particle motion, the particles make basic movements to form a fountain. (1-2 days)

3. Adding physics (gravity, wind, viscosity, friction) to control the motion of the particles. (2-3 days)
4. Add the bounce effect of particles colliding with the ground. (1-2 days)
5. Write Project report (1 days)