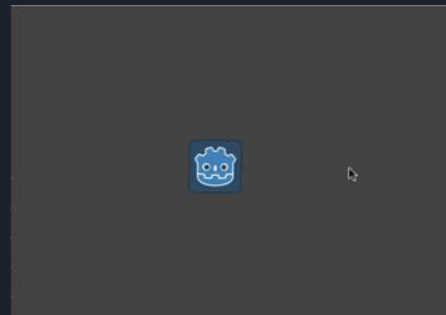
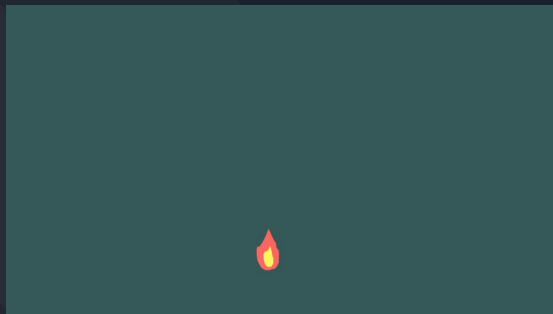


Personal Research

Particle Systems



Gerard Martinez

2nd of May, 2022

Project II

Index

- What it is?

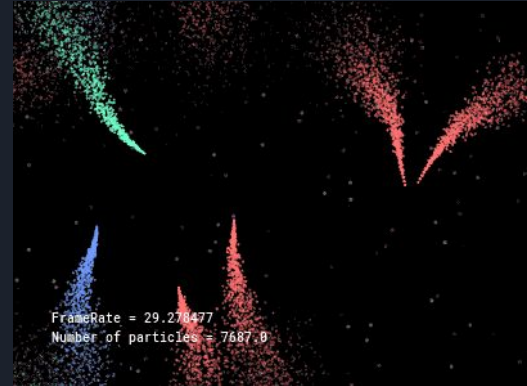
Clear definition of what are we working on

- How it works?

General explanation of how this type of system works

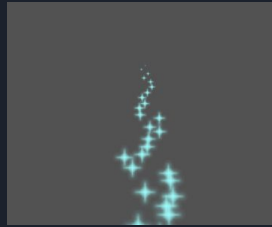
- Code a 2D particle system (with a template already created)

Template and exercises (TODOs) for practicing



Introduction

- Collection of small images that viewed together, form a more complex object.



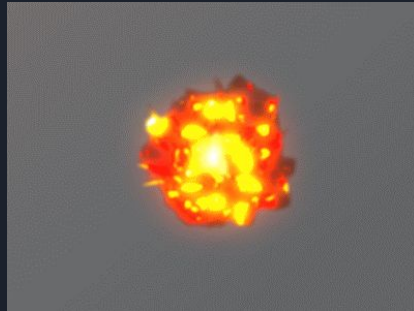
- These complex effects are controlled by specifying the behavior of individual particles using properties
 - Position
 - Velocity
 - Lifetime

Market Study

Particle Systems are something that has been used practically since the beginning of the creation of games

3 examples of its multiple uses throughout video games:

- Explosions

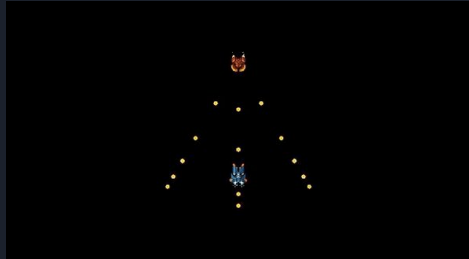


Particle destroyed due to is limited by its animation.

- Bullets



Destruction of a particle from its collision with another object.




Destruction of the particles due to a limitation of time.



Select Approach

General information to keep in mind when we are creating particles:

- Animations can loop ... or not loop
- ModuleParticles and Particle structure
- Characteristics:
 - Anim: The sprite animation sequence
 - Position: Initial position in the world
 - Speed: Modification of the position over time
 - Lifetime: Milliseconds of life until destruction

- 
- Parts and functionalities

ModuleParticles()

- Define all the particles (Anim. , Speed, LifeTime)

Start()

- Load the image of all particles

Update()

- Calls the particles update function for each passing frame

PostUpdate()

- Update the drawing frame of the particles

AddParticle()

- Gets the information of the constructor and adds a particle



Exercise

- Handout

TODOs to become familiar with the template and the Particle System

https://github.com/GerardMartinez02/Particle-System/tree/main/ParticleSystem_Handout

- Solution

To clear doubts and compare the results

https://github.com/GerardMartinez02/Particle-System/tree/main/ParticleSystem_Solution



Citations

Information and images for the examples:

- <https://answers.unity.com/questions/1785183/how-to-make-3-bullets-fire-at-different-angles.html>
- <https://blog.udemy.com/how-to-make-a-2d-game-in-unity/>
- <https://nintervik.github.io/2D-Particle-System/#2-what-is-a-particle-system-and-why-do-we-care>
- <https://www.pinterest.es/pin/609745237032901237/>

Support library that has served to implement the code:

- SDL

Template used for the module:

- Code template used as a base for this Audio and music manager construction