

# TownCount Remake: 2D Metroidvania Game with Shader Effects

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**Abstract**—This is the final project in the Interactive Computer Graphics courses. I am going to make a 2D Metroidvania game. The main character has to pass through different terrain and defeat monsters. I will apply multiple shader effects and lighting in this game to make it look more fashionable. Similar games are Hollow Knight, Mario, and Rockman.

## 1. Libraries and Material

Only use OpenGL for the Graphic programming(glm, glfw, and glew libraries). And use the characters and the stage sprites from my previous project.

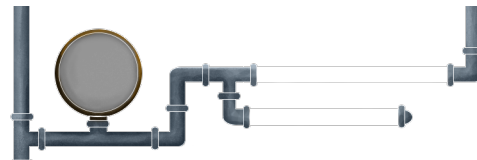


## 2. Tasks

These are the tasks I will try to attempt.

### 2.1. 2D Animations

1. Show the animations of the characters and monsters using glBindTexture and splitting UVs. The animations I want to achieve are: Idle, Run, Jump, 3 Chain Attack, Jump Attack, Damaged, and Died animations.
2. HP bar and other UIs.



### 2.2. 2D AABB Collision Applies to Game Mechanics

1. The character can interact with terrain or even jump on a platform from its bottom.
2. The character can attack monsters, and be hit by monsters.

### 2.3. 2D Light and Shadow

1. The light source came from the main character and lighten the surrounding. It can also apply to the lamp light in the scene.



### 2.4. 2D Shaders

1. Apply some effects on the characters and monsters. For example, if the monsters have been defeated they will disappear using a dissolve shader.



2. Full-screen shader, like the whole screen will display a damaging effect when the character has been hit.

## 2.5. Extra tasks

If I have time I wanna make a menu and a special ability for the main character. His special ability is that he can use a rope to pull himself to the terrain, or even pull a monster closer to himself.

