

Hello,

I am going to present my coursework.

the topic is Development and optimization of unit animation in Unreal Engine 5 for projects in the RTS (Real-time Strategy) genre.

Purpose of work: Development and optimization of unit animation in Unreal Engine 5 for projects in the RTS (Real-time Strategy) genre.

Tasks:

create 3D character models and animate them;

implement the ability to move characters;

implement the ability to move the camera to a selected area of the object;

unit optimization.

The relevance of the work is as follows:

This set of visual objects can become the visual component of an RTS game;

This work allows us to study the performance optimizations provided by the object instantiation mechanism.

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In Unreal Engine we can create a landscape and

we use the sculpting tool to create mountains and landscapes in the Landscape mode editor

As you can see in the picture the sculpting tool is used

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Imported material assets into Unreal Engine for texture from Quixel Bridge. As you can see in the picture the landscape is now beautiful and the picture below is the material Instance and BLUEPRINT

BLUEPRINT is an asset that allows designers to easily add functionality on top of existing gameplay classes. Blueprints are created inside of Unreal Editor visually, instead of by typing code, and saved in the game

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Create a new material in Unreal Engine that will resemble a selection indicator.

And added to the game and it will look like this in the game

Since once of our task is to make a player character move around

We cover the area where we want the characters to be able to move with a surface mesh.

Animation of movement and mining has been added to the character blueprint

We are adding an animated montage to the blueprint

Our player character will be mining gold so we added a 3D model of gold. And a system to record the gold gathered

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Added more buildings and gold resources to make it more presentable.

Added more characters to the game

When you want to select a group of units, a frame (frame) and a blue ring at the feet of the character will appear.

If you want to deselect, click any open area.

Added a health bar which is related to the character's health. When a building and a character are damaged, their health bar decreases.

Added a health bar that depends on the character's health. When a building and a character are damaged, their health bar decreases.

Added AI controller. The AI will attack buildings.

Once the health bar is empty, the building will disappear. (ischeznet)

If you lose you will see a message in the picture

As a result of the work, the following tasks were solved:

- 3D models of units were created and imported into Unreal Engine 5;
- The map landscape has been created.
- Added the ability to select a character and implement character movement.
- Added a health bar showing the impact of damage on the main building and characters;
- Implemented the ability to move the camera and bring it closer to the area of the selected player

Selection indicator

Create a new material in the engine that will resemble a selection indicator

The indicator is a ring of thickness 0.5

We create a function in the engine blueprint for functionality of the selection indicator to be activated when a building clicked

We cover the area where we want the character units to be able to move on with a surface plane

When use an AI controller to control the movement of the character

In the character blueprint we create a variable for the unit movement

Adding moving and mining animations

Create a montage for a mining action using an animation sequence.

We then add the montage through the animation function in the blueprint.

In the mesh component is the animation mode will be set to animation asset and then select "idle" animation as its default animation when the character unit is not moving.

Create a game mode

Ai enemmy

We create a blueprint class for this