



Scope of Work

2D Endless Runner

Version 1.0

Time and materials

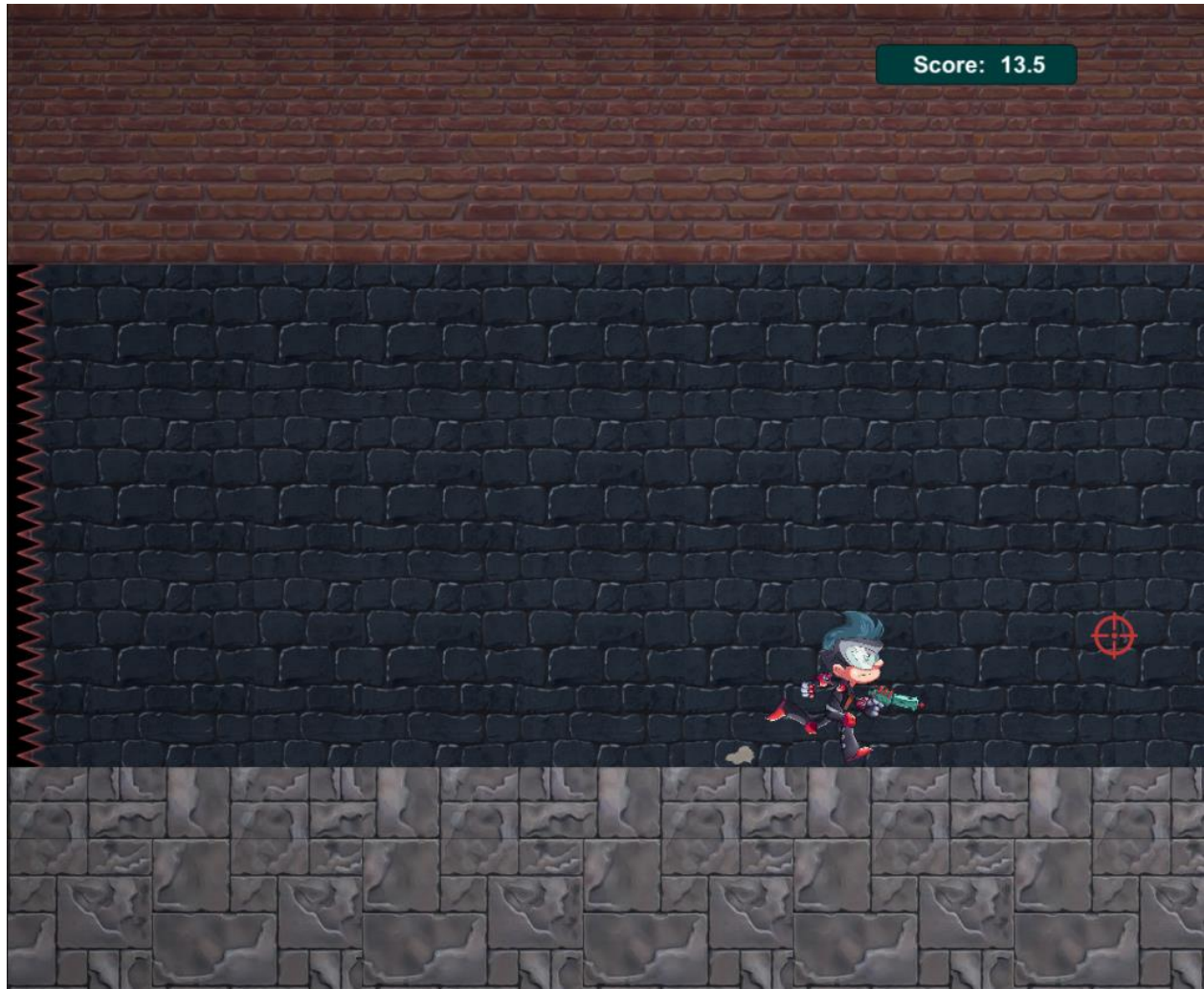
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1 Introduction

2D Endless Runner will be a proof concept game. The users will control a character that will move through an endless straight track.



The user will use specific keys to control the character.

The player will use a weapon that can shoot at enemies.

On the track will appear two types of obstacles at a random interval and position:

- crates - that will block the player.
- high-density zones - reduce the speed of your player by ~30%.

The end score will be determined by the total session playtime. The more you stay alive the better the score. Also, when you kill an enemy, you should get bonus points.

The player is killed when it collides with the death limit zone on the left part of the screen. All the character animations are made with Spine (<http://esotericsoftware.com/>), part of the example scenes.

2 Level Feature

2.1 Introduction

This feature refers to the space in which the player acts and interacts with the other elements of the game.

2.2 Functionality

The main function of this feature is that the map is generated automatically. Thus, an endless game is created and creates support for character interaction. Also, in this feature, the score of players is calculated and updated in GUI score.

The restart functionality is integrated into this feature. Users have the option to restart the session if the game over panel is raised. The best score is saved in a special section.

The behavior of the functionality in this feature is based on the data from scriptable objects.

Level customizable parameters:

- maximum speed
- distance of the camera from the track
- distance between floor and ceiling

3 Obstacles Feature

3.1 Introduction

The purpose of the obstacles is to reduce the player's speed.

3.2 Functionality

The role of this feature is to automatically generate obstacles. On the track will appear two types of obstacles at a random interval and position:

- crates - that will block the player.
- high-density zones - reduce the speed of your player by ~30%. The user should activate a shield around him to not be affected by this zone. This zone should be like a fog, and the dimension will be random generated between a minimum and maximum dimension.

Obstacles customizable parameters:

- spawn rate crates
- spawn rate high-density zones
- minimum dimension high-density zones
- maximum dimension high-density zones
- prioritization (the prioritization applies to 2 or 3 elements, so if the prioritization is set from 0 to 60, that means that the first element has a 60% chance to be spawned and the second element has a chance of 40% to be spawned).

4 Player Feature

4.1 Introduction

The feature refers to the main character that can be controlled by the user. The player will use a weapon that can shoot at enemies. Its purpose is to stay alive for as long as possible and to gather as many points as possible.

4.2 Functionality

The user will use the "D" or "Right Arrow" key to move the character forward, jump over obstacles or enemies using "Space" or "Up Arrow". To activate the shield, the user pressing the Q key. Locating the enemy and shooting him is done with the mouse device.

Player customizable parameters:

- acceleration
- weapon type
- impulse force (force that is applied when the player jumps)

Depending on the speed of the main character compared to the maximum speed, to kill an enemy is required:

- 100% - 70% of the maximum speed (1 hit).
- 70% - 0% of the maximum speed (2 hits).

5 Enemies Feature

5.1 Introduction

The enemies are specific characters that attack the main character. They will be dynamically generated.

5.2 Functionality

Enemies are destroyed when they are hit or when the main character collides with them. When the main character collides with them, the player speed is reduced by 50%. If the player's speed is less than 70% of the maximum speed amount, an enemy needs to be shot at least two times to be killed, otherwise could be killed with one shot.

The enemies should automatically jump over the crate obstacles when they are near to them. They are also Spine elements, which already come with a specific set of animations.

Enemy customizable parameters:

- enemy type (two types available, goblin girl and goblin boy)
- prioritization
- spawn rate

6 Technologies

The used technologies are:

- Unity 3D Game Engine (Version 2019.4.20f1)
- Spine Run-Time Plugin
- C# programming language