Coin Collector Unity Project

Research Engineer Internship – Assignment

This project features a dynamic character controller script for Unity. In this game characters can move forward, switch lanes and jump with all movements and actions controlled by player inputs.

Features

Character control: control character movement, including running, jumping, moving left and right using arrow keys.

Collision Detection: Detects collision with obstacles and triggers game over state.

Gravity and Jump Mechanism: Implementing jumping act with gravity effect.

Speed Control: Gradually increases the forward speed of the character to make the game complex as it reaches to end.

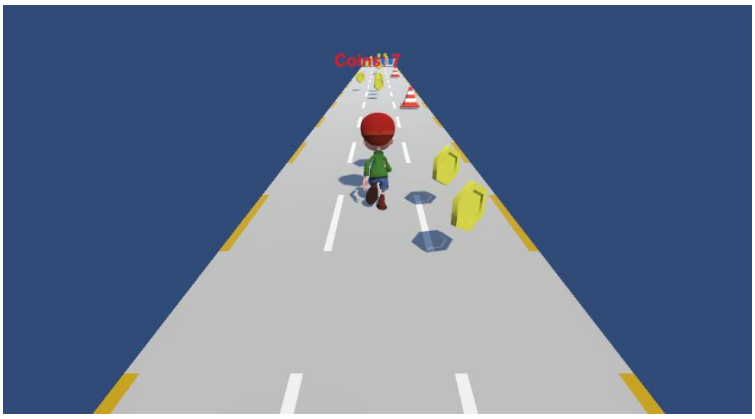
Animation Integration: Make use of animations for idle and running states.

This is a simple 3D platformer game which controls the movement by the arrow keys of the keyboard.

Left Key – Move Left

Right Key – Move Right

Up Key - Jump



Ground movements

The ground is divided into 3 main parts. Those were indexd as

0: Left part

1: Middle part

2: Right part

Initially the player is in the middle. The ground part is saved in a variable named “desiredLane” and when the left arrow is pressed the value of the above-mentioned variable decreases and when the right arrow is pressed it increases.

There are five types of grounds (Which are named as Tile1, Tile2… which consists of coins and obstacles). Where these are randomly generated in the game while the character is moving forward. As the first ground Tile1 is assigned. During this process grounds are added infinitely without deleting the previous. This will cause to slow down the machine. To overcome these previous grounds are deleted.

To implement jump movement, the direction of y increases. However this leads to the movement of the character upward with falling downward. To overcome this gravity force is added. To make only one jump, it is checked whether the character is at ground level. If he is in the ground only, the character can make the jump movement.

When the game starts, the character is at ground level. But when the movements are made value of the y direction changes where the character is not in the ground level. To overcome this issue, it is checked in which state is the character (i.e. Jump, Left move or Right move). If the character is not in Jump move, a fixed value is assigned for the position.