CENG 361

Innovative Game Design

Term Project

Game Design Document

Space Rocket

Özgün DOĞAN

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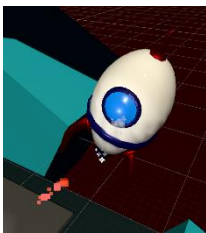
Table of Contents

Contents

Introduction

Space Rocket is a single player platformer game. The logic of the game is simple. Player should drive the rocket to the landing pad despite of gravity rules and obstacles [1].

Genre: Platform Game

Player: Single player

Game Elements[1]

- Rocket: This is the main mission vehicle of the player. The rocket starts on a "Launch Pad" and the player must drive the rocket to the "Landing Pad" despite challenging obstacles such as dynamic and static obstacles or the dynamic platform. Furthermore, Rocket has a fuel feature. If fuel runs out, then rocket falls.
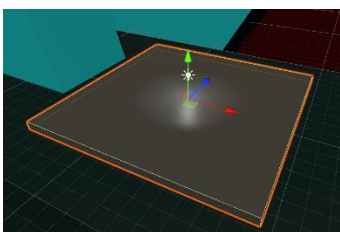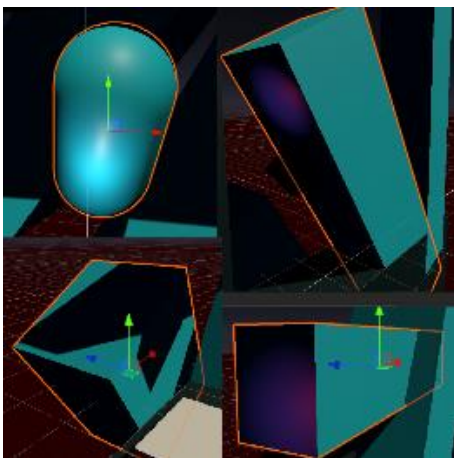

- Launch Pad: 3D square game object. Rocket starts here at the beginning of the game.
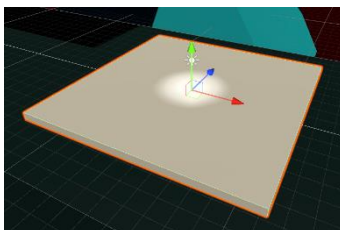
- Landing Pad: 3D square game object. Rocket should touch this launch pad in order to pass the level.
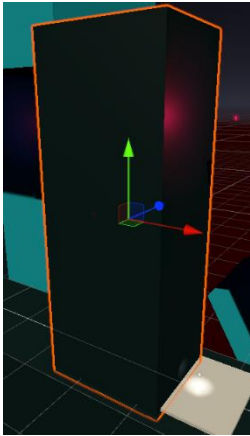
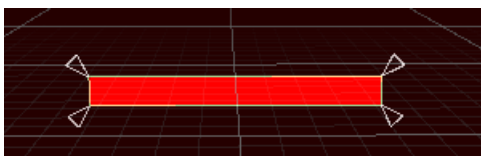- **Moving (Dynamic) Obstacle:** 3D rectangle game object. This obstacle is oscillating.
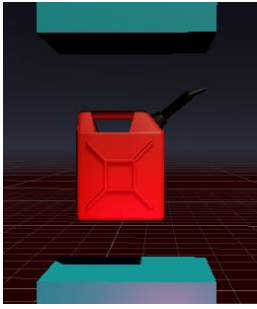
- **Obstacles (Static):** Each level has different obstacles. Obstacles can make each level difficult or easy. They also guide the player for the way to go.
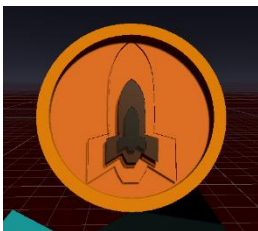
- **Tiny:** Makes Rocket smaller in order to pass narrow gaps.

- **Fuel Tank:** This is a 2D image that shows how much fuel left. The more rocket moves, the less fuel left.

- Fuel Tank: Fills up Rocket's tank.

TECHNICAL SPECS

Technical Form: Space Rocket is a 3D Platformer game demo.

View: Space Rocket has a single main camera that the player can experience. The camera always faces to the all game map at each level.

Platform: PC

Language: C#

Device: PC

GAME PLAY

Player starts game with a rocket on a starting platform and should drive it to a finishing platform. Rocket is able to only move upward (Y direction) and only rotate left or right direction (-X, X). If user press "A" or "D" rocket starts to direct. "A" for left, "D" for right. If "Space" pressed, rocket will go up. If player touches anything else but landing pad, rocket falls and player loses. Additionally, there is a gravity factor in game. Thus, if user don't interact with anything, rocket starts to fall. There is different levels that player should pass and each levels are different. In one level getting smaller is not an issue while other level is mandatory. Moreover, some levels don't contains fuel tank because player shouldn't need it. There is oscillating objects in game one of them is only an obstacle, one of them is a moving platform. One of the side future of this game is fuel. The rocket has limited fuel for its current level and may have fuel tanks filling up the rocket's fuel tank. Another future is Tiny Coin. Tiny Coin makes rocket smaller and fills fuel tank. The player doesn't have to take this future but the level will be experienced as very difficult.
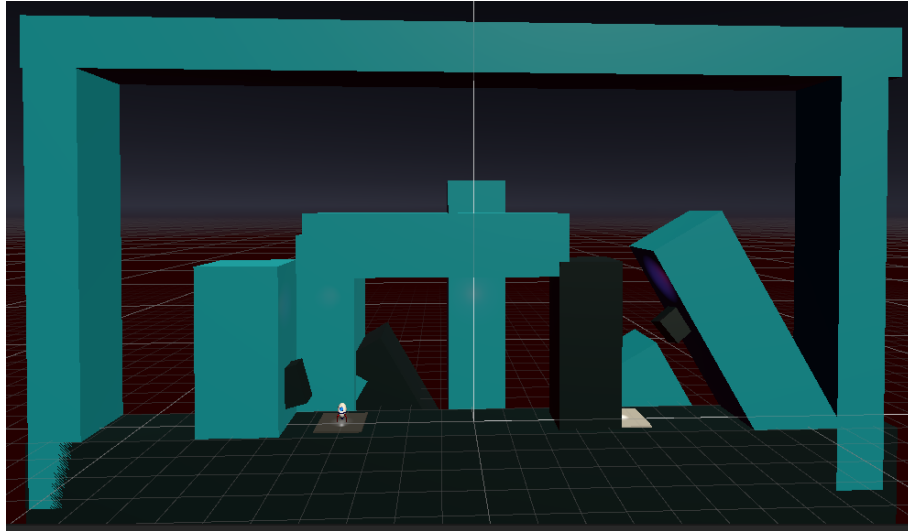
Game Play Outline

- Game levels

Figure 1: Level 1. Black box that on the landing pad oscillates.
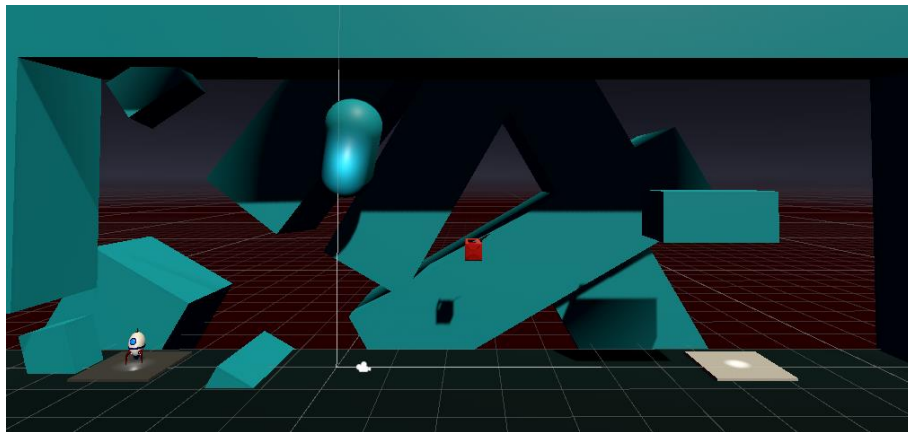

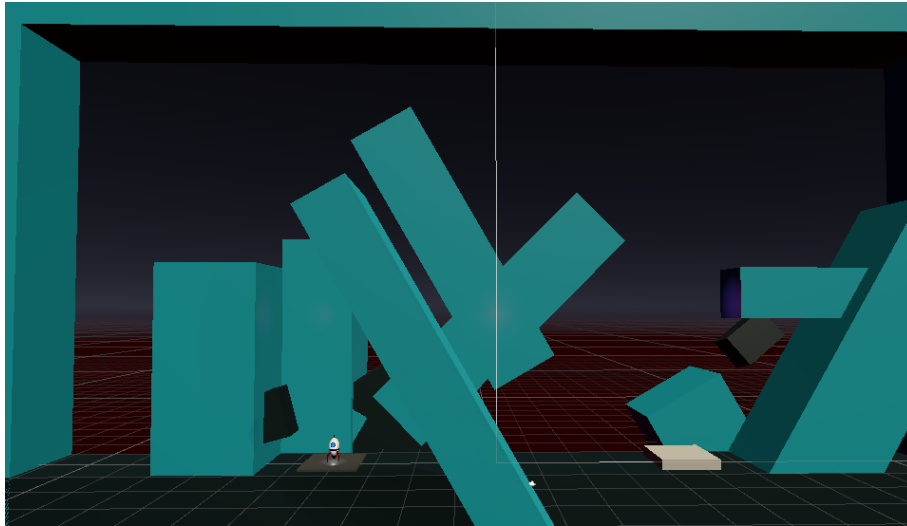*Figure 2: Level 2 There is a fuel tank on the middle of the level.*

Figure 3: Level 3 Player won't see the vehicle due to obstacle that placed between camera and the rocket. Also, landing pad oscillates through Y direction.
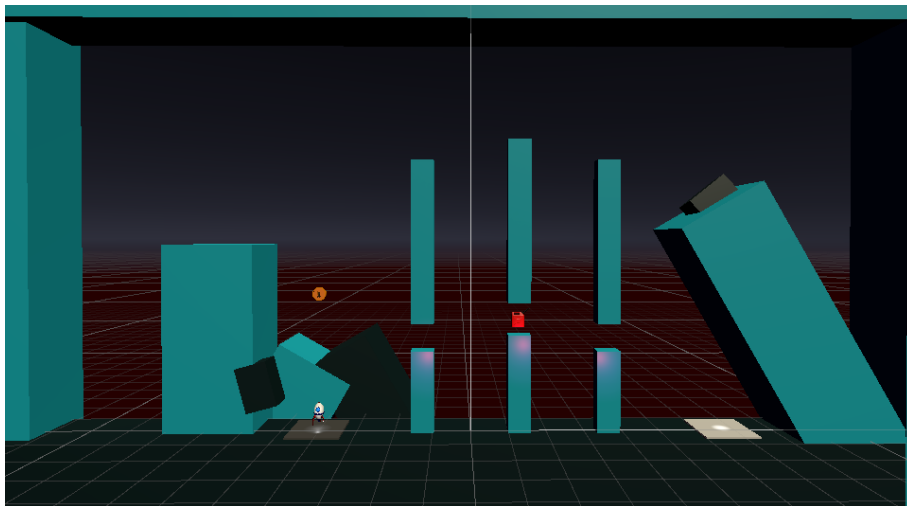

Figure 4: Level 4. There is an another side feature over the rocket that makes the rocket become smaller.
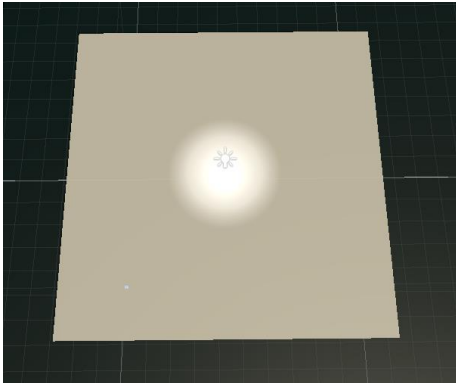
- Player's controls

Space Key: Makes rocket push relatively upright.

"A" Key: Rotates rocket left.

"D" Key: Rotates rocket right.

- Winning

There is only one winning condition. If player is able to touch rocket to the landing pad, Player wins.

- Losing

The game can be lost in two different way. Either the rocket runs out of fuel or touches anywhere but landing pad.

Music and Sound Effects

Background music[2] of the game has an atmospheric space ambience. A space sound is tried to be captured by mixing the space ambiance sound with the piano. The sound is looping as long as the game is running.

Rocket has a flat sound that plays while thrusting. If the rocket touches landing pad, a success sound will be heard. On the other hand, if spacecraft touches anywhere else, the sound of loss is heard. Moreover, If the fuel runs out, an energy run-down sound will be heard.

References

- [1] https://www.udemy.com/course/unitycourse2/
  This project obtained the core idea and most mechanics in this Udemy course. Except tiny and fuel feature. These features are creator's ideas.

- [2] Free Sound: https://www.youtube.com/watch?v=Tp_0oMPGBZs&t=1s
  Piano: Amator musician Doğa Melis ERKE
  Edit by: Özgün DOĞAN

- https://drive.google.com/file/d/1nxvdXasP-HsRCt62cHK3wF_pIrJpYx5T/view
  Silent Hill 2 Design Document
  Publisher: Konami

- https://connect-prd-cdn.unity.com/20201215/83f3733d-3146-42de-8a69-f461d6662eb1/Game-Design-Document-Template.pdf
  Unity Game Design Document

- https://docs.unity3d.com/Manual/index.html
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