



Design Document for:

Neon Heat

The Ultimate Endless Racing Game.

“The heat keeps coming so you keep running!”™

All work Copyright © 2017 by Neon Heat

Written by Neon Heat

Version # 1.00



This work is licensed under a [Creative Commons Attribution 2.5 License](https://creativecommons.org/licenses/by/2.5/).
You may redistribute and modify it freely, including for commercial use, so long as you provide attribution to Chris Taylor as the author of the original template.

Table of Contents

NAME OF GAME	1
DESIGN HISTORY	4
VERSION 1.10	4
VERSION 2.00	4
VERSION 2.10	4
GAME OVERVIEW	5
PHILOSOPHY	5
<i>Philosophical point #1</i>	5
<i>Philosophical point #2</i>	5
<i>Philosophical point #3</i>	5
COMMON QUESTIONS	5
<i>What is the game?</i>	5
<i>Why create this game?</i>	5
<i>Where does the game take place?</i>	5
<i>What do I control?</i>	5
<i>How many characters do I control?</i>	5
<i>What is the main focus?</i>	5
<i>What's different?</i>	6
FEATURE SET	7
GENERAL FEATURES	7
MULTI-PLAYER FEATURES	7
EDITOR	7
GAME PLAY	7
THE GAME WORLD	8
OVERVIEW	8
WORLD FEATURE #1	8
WORLD FEATURE #2	8
THE PHYSICAL WORLD	8
<i>Overview</i>	8
<i>Key Locations</i>	8
<i>Travel</i>	8
<i>Scale</i>	8
<i>Objects</i>	8
<i>Weather</i>	9
<i>Day and Night</i>	9
<i>Time</i>	9
RENDERING SYSTEM	9
<i>Overview</i>	9
<i>2D/3D Rendering</i>	9
CAMERA	9
<i>Overview</i>	9
<i>Camera Detail #1</i>	9
<i>Camera Detail #2</i>	9
GAME ENGINE	9
<i>Overview</i>	9
<i>Game Engine Detail #1</i>	10
<i>Water</i>	10

<i>Collision Detection</i>	10
LIGHTING MODELS	10
<i>Overview</i>	10
<i>Lighting Model Detail #1</i>	10
<i>Lighting Model Detail #2</i>	10
THE WORLD LAYOUT	11
OVERVIEW	11
GAME CHARACTERS	12
OVERVIEW	12
CREATING A CHARACTER	12
ENEMIES AND MONSTERS	12
USER INTERFACE	13
OVERVIEW	13
USER INTERFACE DETAIL #1	13
USER INTERFACE DETAIL #2	13
WEAPONS	14
OVERVIEW	14
POTENTIAL WEAPON SYSTEM	14
MUSICAL SCORES AND SOUND EFFECTS	15
OVERVIEW	15
3D SOUND	15
SOUND DESIGN	15
SINGLE PLAYER GAME	16
OVERVIEW	16
STORY	16
HOURS OF GAME-PLAY	16
VICTORY CONDITIONS	16
MULTI-PLAYER GAME	17
OVERVIEW	17
MAX PLAYERS	17
SERVERS	17
CUSTOMIZATION	17
INTERNET	17
GAMING SITES	17
PERSISTENCE	17
SAVING AND LOADING	17
CHARACTER RENDERING	18
OVERVIEW	18
WORLD EDITING	19
OVERVIEW	19
EXTRA MISCELLANEOUS STUFF	20
OVERVIEW	20
JUNK I AM WORKING ON...	21

Design History

This is a brief explanation of the history of this project.

This section is used to track the version history for this project. As a team, we try to achieve a lot of updates such as bug fixing, new features, tweaks and so on.

Version 1.0 (Stable Release)

Version 1.0 is the stable release of the project which includes a lot of cool features and gameplay that you would not be able to take your eye off, features include:

- A device such as a phone to be used to control the car using the device's motion.
- A game mode that switches via entering a portal.
- Power-ups such as shooting obstacles and shield that prevents you from crashing.
- Cops chasing you so you must maintain your speed to not lose.
- A main menu where you can select to play and adjust settings such as turning off SFX and Music.
- Cool artwork and sound effects.
- Car camera effects such as shaking and changing colours when hitting an obstacle.
- Leader board that holds the distance travelled.

Game Overview

Philosophy

Philosophical point #1

This game is trying to make the user feel like they are back in the old ages, not the very old ages, we are talking about like 80s or 90s. There are not many games like this out there as of today, they are all modern although our main goal was to create a different feel to when playing a racing game to the user.

Philosophical point #2

Neon Heat runs on the PC and Mac OS X and currently the use of the Android phone to move the car left or right using motion.

Philosophical point #3

There are many design goals that we have as a team and try to meet our goals, although the main objective for us is to make Neon Heat feel like it's something you have never played before.

Common Questions

What is the game?

This game is an endless car racing game where you are chased by the cops and avoid obstacles that can slow you down, if your speed doesn't match the heat then you won't feel the heat.

Why create this game?

The reason that we as a team have decided to create a game like this is as stated before, there are not many games out there that have the old-school car racing game feel in a parallel universe.

Where does the game take place?

Neon Heat takes place in a designed parallel universe.

What do I control?

You control the car only by either making it move left or right with the keyboard or using your phone's motion.

How many characters do I control?

In this game, you only control the one car the very famous DeLorean.

What is the main focus?

The main focus or goal in this game is to go travel as far as possible and to not get caught by the police. You must also avoid dangerous obstacles that will slow you down and help the police catch you.

What's different?

What is different in Neon Heat is that it's a game that people would have never seen or would have not seen for a long time. We keep the old-school theme in this game making the user feel like this game is just something different to the modern games out there.

Feature Set

General Features

- Endless world
- One main car
- 3D graphics
- Epic animations
- Different game-mode switching via portal
- Illusion when crashing into obstacles
- Original soundtrack

Multiplayer Features

- Multiplayer to be announced

Editor

- No use for this now as everything is loaded from the game

Gameplay

- Select from the Main Menu on start up
- You can select to play which goes into the game play mode
- Leaderboard can be selected to view the top scores in the game
- Options to turn off SFX or camera effects
- End is simply to quit the game
- When playing this game, you must try to avoid obstacles to keep on the heat
- You can control the car via the keyboard or an Android phone with motion
- There are city cracks which can lead to instant death if you fall into it
- Going into a portal changes the game-play into a desert mode
- Missiles are also being launched at you so you must try to avoid that otherwise you will lose speed
- You must maintain a higher speed than the cops to keep on playing

The Game World

Overview

The first game mode is basically a city in the night where you are limited on how far you can turn left or right. However, in the second game mode which is called the desert you are out of the city and drive into this desert where you can turn left or right as much as you want.

World Feature #1

The city is which is the world that loads up when you first play the game is the world with the limited space to navigate.

World Feature #2

The desert is the world that loads up when you go through the portal, going through the portal is compulsory which leads to changing the world, in this world you can navigate to the left or right as much as you want until you see a portal which you need to go to through for the world to change back to the city.

The Physical World

Overview

- The physical world of Neon Heat contains a load of objects that can be harmful for you or good for you.
- There are the obstacles which are called pillars in which if you crash into them, they explode and you slow down.
- Speed rings are the critical as going through one of those rings will boost your speed so if you crash into a pillar and see a speed ring it would be vital for you to go through them.
- City cracks which are in the city world will lead to instant death if you fall through it so it's best to avoid it, even if it means you must crash into an obstacle to avoid it.
- The portals which were mentioned above are basically compulsory and going through a portal changes the world in the game.

Key Locations

The world is endless so key locations in Neon Heat are not key here although you'd need to come up with a strategy approach to maintain your speed while avoiding obstacles and city cracks.

Travel

The travel in this game is basically the car moves forward by itself and the player moves the car to the left or right using the keyboard or a smart phone by motion. There is no reversing.

Scale

The game scales down to the computers resolution.

Objects

- Pillar: An object that if crashed into by the player it will slow the car down.
- Speed Ring: Going through this will increased the speed of the car.

- Shield Perk: If picked up it will ignore the pillars if you crash into them so you maintain your speed, this perk last a few seconds though.
- City Crack: Falling down this crack will instant kill you so it's best to avoid it.
- Portal: Going through this will changes the game mode.

Weather

Still weather for the moment until objectives are complete. Implementing the weather feature is extra but not intended to be released for the stable release of this game.

Day and Night

Neon Heat has a night mode in the city and when going through the portal into the desert it will still be at night although it won't be as dark as the city world. The desert world will have a sun rising.

Time

Time is used for when you are not at the required speed. If you are not at the required speed you have 10 seconds to get up to speed before the cops catch up to you, otherwise it's game over.

Rendering System

Overview

The game renders by using Unity's Real-time Baked GI approach.

2D/3D Rendering

Unity3D game engine is used to render the game.

Camera

Overview

The camera focuses on the car in a third person view. The camera has two key features which will be explained below.

Camera Detail #1

When driving, the camera will always slightly shake, it's as if you're driving a real car you can feel the vibrations depending on the car. If using the smart phone to control the car you will feel the vibrations too which is why it's best to use the smart phone as a controller rather than the keyboard.

Camera Detail #2

When crashing into the pillar(obstacles) the camera will shake even harder and cause an illusion which is an important camera detail in Neon Heat.

Game Engine

Overview

Unity is a multi-platform game development tool with customizable and easy to use editor, graphical pipelines to DirectX and OpenGL. It uses an advanced physics engine.

Game Engine Detail #1

The game engine will keep track of the objects spawn, the camera view, game mode changing such as from city to desert and detect collisions.

Water

Water will not be used in this game unless a new world is added in the future, so nothing is ruled out.

Collision Detection

Our game engine (Unity 5) handles collision detection well. It uses Rigidbody to enable physical behavior, when this is attached to an object it will respond to gravity. If collider components are also added the GameObject is moved by incoming collisions.

Lighting Models

Overview

The lightning comes with the city to keep it dark and pink grids are added as the background to make the world of Neon Heat glow.

Lighting Model Detail #1

Unity has a light component that you can attach to a GameObject to change its color, range, spot angle, intensity, shadow type and baking.

Lighting Model Detail #2

A C# script that changes the behavior of how the lightening behaves such as a timer to make it turn on and off.

The World Layout

Overview

- There is a city with cracked section in it and another with no cracks, when starting to play the car starts on the city with no cracks and just drives forward.
- There is another world which is the desert objects are randomly places into it as the player keeps on playing.
- City spawning, portal spawning, obstacle spawning is all done through C# scripts.

Game Characters

Overview

The only character in the game is the DeLorean car which the player controls.

Creating a Character

The car is already created and it cannot be personalized.

Enemies and Monsters

The enemies in this game are the police, you can't let them catch you otherwise it's game over. Another enemy you can say is the obstacles that slow you down to aid the police in catching you.

User Interface

Overview

A main menu interface, speed bar when playing the game and an end game interface whether to play again or quit the game. The user interface is all friendly in this game, the buttons are nice and big, the design is simple and neat, without a doubt the user should not have any difficulty with the user interface system in this game.

User Interface Detail #1

A neat main menu where the player can select to play the game, view the leaderboard, change the settings in the game for example the SFX and to quit the game.

User Interface Detail #2

When playing the game, you have the speed bar on top of the screen and the distance you have travelled is also displayed to you.

Weapons

Overview

Weapons are not used in this game. However, this feature has not been ruled out for future updates if they were to happen.

Potential Weapon System

- The car would be able to shoot at obstacles to remove them for a limited time.
- Police can shoot at you to slow you down, you can dodge this by moving away in time.
- Other characters in the game with that can shoot at you to instant kill you.

Musical Scores and Sound Effects

Overview

In Neon Heat, there will be two main sound effects, one which is for the menu and the other is for the gameplay. There will be more sound effects such as collisions into obstacles, police sirens and more.

3D Sound

3D sound is not used in Neon Heat although the option has not been rules out for future updates if they were to happen.

Sound Design

The sound that will be used for this game must match the gameplay, for example you don't want a football theme for the game since it's a racing game speed is involved so something that speeds up the user's mind not slow it down.

Single-Player Game

Overview

This game is basically a single player game, you run try to get as far as you can while keeping the heat away from you (police). You must also try to avoid obstacles which will slow you down, the slower you go the closer the police can get to you.

Portals are mandatory so you must go into them to change the world in the game. The desert is the other world where the user can turn left or right as much as they want.

City cracks must always be avoided, this is what kills the player, falling into this causes an instant death.

Story

Neon Heat doesn't really have a story, it's an endless racing game running away from the cops and avoiding obstacles while collecting perks and using them to aid you with speed.

Hours of Gameplay

It really depends on the player and how competitive the player is, leader-board is added into this game so people are going to be wanting to compete for longest time running away from the cops.

Victory Conditions

There is no beating this game, you keep driving until you get caught by the police or die.

Multiplayer Game

Overview

Since it's an endless game, multiplayer isn't really needed in this game however the multiplayer feature has not been ruled out and can be potentially included in later versions of this game.

Max Players

Void.

Servers

Void.

Customization

Void.

Internet

Void.

Gaming Sites

Void.

Persistence

Void.

Saving and Loading

Void.

Character Rendering

Overview

As mentioned before rendering is done by Unity's Real-time Baked GI, it renders the lightning the city, everything including the character which is the car.

World Editing

Overview

As mentioned before, world editing is not used in this game, world editing is ruled out for Neon Heat as there is no use for it in this game.

Extra Miscellaneous Stuff

Overview

Here are the ideas that may be included in future updates after the stable release is released.

Ideas

- Selecting different cars.
- Upgrading cars.
- More upgrades.
- More worlds that change the game-mode.
- First person camera view.
- Open world game (Neon Heat 2 would have to be made).
- Buying perks.