



Design Document

Doggie Daycare

The Ultimate Dog Game

"This game isn't a ruff time, it'll have you barkin for more!"™

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Design History

Our overall game, Doggie Day Care, had a large evolution throughout the creation process. For our initial vision of the game, we envisioned working on a 2D game and did research on existing 2D dog related games. As our game evolved, it became more complex and a larger universe and open world. The premise evolved from a dog walking game to a dog rescue game, with the intent to have the user rescue and save dogs throughout the open map. This document evolved greatly as our interests and vision for the game also evolved. In the final version of the game, it became a fully immersive experience for the user and unlike most other games which allow users to take care or help dogs in a unique world.

Version 1.0

Version 1.0 of this design document began with three ideas. We wanted our game to be related to dogs, work in Unity 2D, and have a greater purpose for our game. These changes are listed more specifically below:

1. Initially, version 1 was a dog walking game.
2. It was going to run on Unity but in 2D, top down view.
3. There was intent of having some charitable aspect or greater impact of a small game, but this idea was not realized yet.

Version 2.0

Version 2.0 of this game began after we had more time working on the envisioning of the game. Our team pooled together our different ideas and created a space in which we could collaborate. This version of the game was the most changed and difficult of any of the versions. These elements are reflected in the changes below.

Changes:

1. It was decided that this game would run in Unity and work in 3D.
2. The aspect or vision of saving dogs in the allotted time became the vision of the overall game.
3. The basic town map was created and built.
4. We began designing the first two dogs used in the game.
5. We added various basic town map elements.

6. Our purpose of having a message somewhere in the game of donating to the Irvine Animal Care Center became realized.
7. The basic elements of the document were added.
8. An open 3D environment was initialized.

Version 2.1

Version 2.1 has several small changes over that of version 2.0. The key areas are in many of the appendixes.

These changes include:

1. Revisions throughout the document.
2. Expansion of world to include park and neighborhood.
3. Other objects added, like more dogs and golf cart.
4. Added idea that every dog saved adds 30 seconds to original clock of 2 minutes to give user a chance of getting a higher score.

Version 2.20

Version 2.2 saw the finalization of the overall game. It handled the final adjustments and tweaks to the game, the website, and the design document.

Changes include:

1. Added music produced by one of group members to game.
2. Finalized website and document.
3. Finalized game elements, focused on debugging

1. Game Overview

1.1 Philosophy

Open 3D Environment

One of our goals for the game was to create an open, living 3D environment and map. The point behind this was to create an environment which the user could interact with. Although there is a limitation to when the map size, the idea was to create an immersive environment for users to interact with beyond the simple 2D games. It gives depth and dimension to the game that other similar games do not offer.

Charity Aspect/Opportunity to Do More

All individuals involved in this project are dog lovers and supporters of the Irvine Animal Care Center. In another overarching philosophical goal, we wanted to utilize this project in order to serve a greater purpose. Not only did we want to create an enjoyable game for users, but also include a link and opportunity for users to donate to the Irvine Animal Care Center. At the end of the game, we will include this opportunity and link to it as a way of accomplishing this goal.

Enjoyable Gameplay

Our final overarching philosophical point was to create an enjoyable game. This point is simple, we wanted to create a game that other users would enjoy and want to play. Within this, we wanted this game to be an activity they could play to destress on their breaks. The clock starts off at two minutes and for every dog the user saves, 30 seconds is added to the clock. Gameplay can be short or long, depending on the user's preferences.

1.2 Common Questions

What is the game?

The game is called Doggie Daycare. A player has two minutes on the initial clock. 30 seconds are added every time a dog is rescued. The goal for the player is to rescue as many dogs as possible in the time allotted. A dog must be picked up and dropped off at a random point in the map, for the user to qualify it as them rescuing the dog. At the end of the game, the user will receive a score of how many dogs they saved. The goal of the game is to save as many dogs as possible and do so in a sufficient time span.

Why create this game?

We all created this game as we are all dog lovers and wanted to see if there was a way we could contribute to a larger purpose to use our game to do something bigger. By including a link for users to donate to the Irvine Animal Care Center, this allowed us to do just that. Additionally, we wanted to create a game that users would be able to play on their breaks and as a way of destressing during an overwhelming day.

Where does the game take place?

This game takes place in Aldrich Bark Park and in the surrounding town of Burbark, California. The setting is a fictional town in which dogs are running around all about the map, it features a large park and a town center or city with various buildings, like a bookstore. On the other side of town is the neighborhood, which holds many different homes and residences. Overall, the two key areas are the town and the park.

What do I control?

The user controls a dummy figure, representing a human. Our dummy is blank so the user can project themselves onto them and it does not make any assumptions about the user. They control this human that moves about the world and can pick up dogs and save them.

How many characters do I control?

A user can only control one character, the dummy human. The player indirectly controls the dogs by throwing treats, balls, frisbee, and sticks. Each item has a different effect. Balls bounce so they are not consistent and frisbees are thrown far. Treats are the only consistent item because they land in the direction in which they were thrown. Sticks are another item and they are located in the park, but they cannot be thrown far. All other items are found in the town center. So the player must make wise decisions on which item to pick up.

What is the main focus?

The user is supposed to save dogs in this game. This is the main overarching goal, which is for the user to save as many dogs as possible. It is not a multiplayer game and is meant for the user to play in any free time they might have.

What's different?

Other similar games on the market do not feature a 3D aspect. While they are interactive and longer games, these dog rescue games are 2D and not clear with instructions. The instructions for similar dog rescue games can be too complicated so a user cannot understand what goal they are trying to accomplish or the environment is a 2D game and a simple maze. These other games are not directly interacting with the world and thus it is the opposite of an immersive experience, not allowing the user to relax and are more stressful than our game will be. Our game is a 3D game which is meant to be short and simple, so the user can easily play and understand. Additionally, they are meant to actually rescue the dogs and is not a puzzle game.

2. Feature Set

General Features

- Large map
- Dogs and other animals, such as squirrels
- 3D Graphics
- Open Map Within Bounds
- Easy Gameplay

Multiplayer Features

None

Editor

No editing options currently available

Gameplay

- Short, easy gameplay
- Clear instructions
- Simple, straightforward
- Addicting
- Original content and gameplay

3. The Game World

3.1 Overview

Within the game world, there are three basic components. The first area is the town area which includes a variety of town shops and the second area is the neighborhood which holds a variety of different homes. In the central part of town is Aldrich Bark, a park, which is an area where many types of animals and objects exist like squirrels, dogs, trees, etc. A more complete inventory of the objects available in the town is listed below in the appendix. As stated above, the city takes place in Burbark, California - home to many dogs.

Environment at a Glance

The environment will be portrayed as a cartoonish art-style but be inspired by the real world. It contains what you expect when you walk down your neighborhood. It contain buildings, trees, and cars.

3.2 The Physical World

Overview

The following describes the key components of the physical world.

Key Locations

There are three key location a park and the neighborhoods the park is where the dogs spawn and where the player will start. Additionally, there is the town center area. Where the player can get dog treats and toys. Each dog will have a corresponding home and it will be up to the player to get each dog into their own homes in the time limit.

Travel

The player will use their keyboard to navigate the game world. The player will use the standard W, A, S, and D keys or the arrow keys to control the direction in which the dummy human navigates the world. Players may also take control of a golf cart to transport the dogs and travel around the town faster.

Scale

The scale of the world will be a small neighborhood, an adequately sized park, and a larger town area. It is not meant to be a huge world, although it is meant to be an open environment where the user can explore.

Objects

There are many different objects that can be found within our world. These objects include trees, tennis balls, dog treats, frisbees, sticks, fire hydrants, golf carts, benches, and many other objects. Most of these objects the user can interact with or use in some capacity to help them in the game. The user can drive the golf cart around the map to more easily interact with it. They can use the tennis balls, dog treats, frisbees, and sticks to get the attention of the dogs to rescue them. Other objects are solely for decoration and serve to enhance the experience of the overall game.

For a full list of all of the objects found in our world, see the Objects Appendix below.

Weather

The weather found in the world is bright and sunny, usually at a perfect 78 degrees. There are no other types of weather in Burbark.

Day and Night

There is only day, no night. This is due to the fact that the dogs in our world sleep during the evening and are only awake during the day.

Time

There is no time that exists. The only awareness of time that is present is the countdown clock which is a clock that counts down from the time the user has remaining so the user knows how much time they have left to rescue the dogs.

Rendering System

The rendering system used is Unity.

2D/3D Rendering

Unity 3D is what will be used in creation of the game.

3.3 Camera

Overview

The camera will follow a standard third person perspective conventions. Doing this makes the game easy for any player to pick up and play. There will also be a second camera that loops around the map, which is the background of the title screen. This serves no purpose except for the background of the title screen, which the user can change or click play game.

Camera Details

The orientation of the camera will be tied to the mouse. Moving the mouse will pan to a different directions. The position of the camera, will be tied to the player model. It will follow the player from behind to create a third-person perspective.

3.4 Game Engine

Overview

The game will be developed on the Unity3D engine using assets created by third-party tools such as GIMP and Maya. Several custom code modules were added to the various characters and objects of the game to allow for special behaviors tailored towards the game. These include but are not limited to, having npcs follow you, drive carts around, throw treats.

Dog Followers

A major mechanic handled by the games engine is having npc characters, namely dogs, follow you around through the world. After being incentivised with a treat or goodie as thrown by the player, the dog will continue to follow the player until they are taken to their destination. We were able to implement this feature using a custom code module we applied to these npcs using the Unity engine.

Collision Detection

Collision detection and behaviors upon collision were both essential in this game for when treats and goodies are tossed out and keeping the player within the main regions of the game. Using custom made mechanics with Unity's libraries, we were able to create simple collision detection for the objects and characters of the game restricting them from passing certain boundaries, not falling through the world map, and not phasing through buildings and other objects.

3.5 Lighting Models

Overview

To put it simply, our lighting model is the default lighting model from Unity, or global illumination.

Global Illumination

We are using the global illumination lighting to light our world. This is the standard Unity lighting model for their 3D rendering. It gives depth to the world and allows for a more immersive and realistic experience.

4. The World Layout

Overview

The world of Doggie Daycare is centered in a small town surrounded by thick forests. Overall the town is sprawling with dogs and local wildlife across the map. The city is divided into several different sections for the player to explore with vehicles placed about for quick movement to different areas of the map. A map of the game world is accessible to the player.

City

The city is divided up into several major districts. A few residential areas line the areas on the borders of the map with parks on the north and south sides of the map. In the inner city is the main downtown area along a massive stretch of road. Homes, restaurants, and office buildings surround the streets of the city.

Forests

The forests enclosing the city hold a few small secrets for the player to discover here and there but overall serve to add scenery to the outer city and bound the player to the main map. A smaller forest bounds the northern side of the map whereas a thicker one with larger trees and hedges lines the southern ends.

5. Game Characters

Overview

In this game, there are few characters. There are four versions of the dogs, styled in different ways. Additionally, there is the character the player controls. Finally, there are other characters like, deer, squirrels, and bears, which serve no purpose except aesthetically to give further depth to the game.

Creating a Character

As we want inclusivity in our game, we do not allow for users to create a character. They play as the normal default dummy character and there are no options for customization.

Dogs

The entire goal of this game is to rescue the dogs, there are 4 different kinds which the user can save. They can also pick up the treats and fetch for the tennis balls, amongst other objects we have created in the game.

Misc. Characters

Other characters include the squirrels and deer. However, these characters do not have any purpose except to add to the user experience and immerse them into the 3D world.

Bears

The bear character was taken from the Unity3D Asset store, but scripted by us to include animation. A bear can hunt the character, grab them, and disturb their dog rescue. These cannot hurt the dogs, but can throw the character around.

6. User Interface

Overview

The game incorporates a minimal user interface so that the player may enjoy the scenery and objective of the game. The simple UI is used to pair with the games simple objective of collecting dogs and returning them to their homes.

Timer

The timer is located in the upper-righthand corner of the players screen and displays how much time is left until the current session is over. More time can be added to the timer when the player successfully returns the dog to its home.

Hovering Names

The names of characters, primarily the dogs, appear over the heads of the dogs to allow the player to identify each one.

7. Musical Scores and Sound Effects

Overview

Our musical scores were done originally by one of our sound producers. Most of our efforts went into the creativity of the musical scores, producing two different covers and one original song. There are a few sound effects, such as dogs barking in the game and a car engine.

Audio

We used the digital audio workstation Ableton to create background music. One of these songs is a cover of Chamber of Reflection, originally by Mac DeMarco. Another song is a cover of Last Christmas by Wham! These were produced with dog barks and the dogs bark to the tune of these songs. The final song, an original composition called Woof Woof, also is in the tune of dog barks. The songs serve to provide specifically crafted background ambience.

Sound Effects and Design

We created a few sound effects for this game, including dogs barking and the engine of a car. The engine was created by our sound engineer. Dog barks were originally one dog barking from YouTube, but the rest of the five sound effects were created by our sound producer. These were also processed in Ableton. All sound effects work to contribute to enhancing the reality of the game.

8. The Single-Player Game

Overview

Doggie Daycare revolves around the single-player experience in collecting dogs located around the map with the only competition to worry about being the clock and the scores of other players.

Leading Dogs to Objective

The primary goal as a single-player game is having the player lead the dogs to their primary destination adding to the players total score when doing so. Players continue to complete this objective until time expires.

Finding Dogs

Rather than worry about another player roaming about, one of the primary tasks at hand for the player is that of exploring the map in search of the dogs to take home by checking the various nooks and crannies of the city.

Story

Each play session takes place immediately after several dogs have scattered into various corners of the town of Burbark. It's up to the players to find them and return them to their respective homes before too much time has passed. They accomplish this with the help of treats and their map of the town.

Hours of Gameplay

Doggie Daycare is limited to a small timeframe never exceeding more than a few minutes. The player can add time with the number of dogs they rescue but a single play session should last no more than ten minutes as the dogs do take ample time to find and save.

Victory Conditions

Victory conditions depend on the amount of dogs saved when the timer runs out. This is not necessarily a victory condition, there is no win or lose, just how many dogs the user can rescue before time runs out.

9. Character Rendering

Overview

All of the primary 3D models for the game unless otherwise specified have been made with Maya. Every object in the game from the map to the characters are rendered with the Unity Engine's default settings.

World Map/Characters

The game's world is fully rendered from the start due to its smaller size. While it does take time for the player to traverse, all of the assets such as the objects, characters, and lighting are all rendered as soon as the player starts the game. It was left up to Unity's default 3D rendering capabilities.

Animations

All of the dogs and other animated creatures and characters are following their scripted motion as soon as they are rendered into sight. As mentioned prior this is right about when the game starts.

10. Miscellaneous

Overview

The game contains several small features and details that haven't been mentioned prior and can briefly be discussed as follows.

Extras...

GOLF CART: The player is able to ride around the map and load acquired dogs onto a golf cart. It is fully operational and increases the movement speed of the player significantly. The player is unable to do normal operations while driving.

VENDORS: The player can buy items from different vendors to incentivize dogs into following them around. One example is the tennis ball shop located in town where tennis balls may be obtained and thrown around to attract dogs.

“Objects Appendix”

Player/Human NPC	Street Sign	Building A/B/C/D...
Bear* Credit to: https://assetstore.unity.com/packages/3d/characters/animals/animals-pack-lowpoly-67734	Park Bench	Home A/B/C/D...
Squirrel* Credit to: https://assetstore.unity.com/packages/3d/characters/animals/animals-pack-lowpoly-67734	Fence	Grass Spaces
Deer*	Wall	Concrete Spaces

Credit to: https://assetstore.unity.com/packages/3d/characters/animals/animals-pack-lowpoly-67734		
Daschund A/B	Shop building* Credit to: https://assetstore.unity.com/packages/3d/simple-town-lite-cartoon-assets-43480	Slide
Beagle A/B	Lake	Swings A/B
Shiba Inu A/B	Golf Cart	Canopy
Small Tree	Car A/B/C/D...	Gazebo
Large Tree	Fire Hydrant	Monkey Bars
Hedges	Rock	Sandpit
City Tree	Dead Tree	Road* Credit to: https://assetstore.unity.com/packages/3d/simple-town-lite-cartoon-assets-43480
Sidewalk* Credit to: https://assetstore.unity.com/packages/3d/simple-town-lite-cartoon-assets-43480		

“User Interface Appendix”

Map	Timer	Score
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