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Design Document

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Introduction

Get Away is a single-player adventure survival game. The game is inspired by such popular games as *Don't Starve, DayZ*, and *Minecraft*. Underlying the game's premise is the need for the player to scavenge for food and materials while simultaneously struggling to survive the island's mysterious dinosaur population. The player will be able to create tools and gather resources in the environment. Ultimately, it is the player's goal to find the resources necessary to escape the island by makeshift raft into the ocean.

Specifications

1. The game was built using the Unity game engine.
2. The game was developed for the Unity Web Player and Microsoft Windows.
3. Scripts for the game were mainly written in C#.
4. Game was developed over the course of the Spring 2014 Semester.

Game Overview

Common Questions

What is this game?

Get Away is a single-player survival game.

What inspired this game?

Get Away was inspired by recent survival games like *Don't Starve, DayZ, and Minecraft*. We wanted to create a game that borrows elements from each to create a solid gaming experience.

How is it different from those games you just listed?

Get Away is different because rather than a game where you simply survive as long as you can, you have a goal that you are working towards. The player can only win if they actually succeed in building an escape raft. The player's goal is to escape from this dangerous island, not to make it his home!

Who do I play as?

You play as an unnamed man who awakes from a plane crash only to find himself stranded on an island with dinosaurs!

What is this game?

Get Away is a single-player survival game where the player gets one shot at building a raft and escaping. If the player dies, they will need to start all over again from the very beginning!

Controls

Player

Action	Keyboard/Mouse	Xbox 360 Controller
Movement	'W', 'A', 'S', & 'D'	Left Thumbstick
Camera	'Mouse Movement'	Right Thumbstick
Jump	'Space'	'A'
Attack/Use Item	'Mouse 1'	'Right Trigger'
Run	'Left Shift'	Left Thumbstick Click
Crouch/Sneak	'Ctrl'	Right Thumbstick Click
Pick Up Item	'E'	'X'
Open Inventory	'I'	'Y'
Open Crafting Menu	'K'	'B'
View Health	'T'	'Right Bumper'
Pause	'Esc'	'Start'

Environment

Overview

The player character starts out in an airplane which travels over the island giving the player a good view of the environment they will explore. After the plane crashes, the player must swim to shore where the dinosaurs reside. The player can move around in the environment and interact with things they find as they traverse the environment.

Biomes

The game takes place on an island. The player starts out in the water after a plane crash and needs to move inland to reach other biomes while searching for materials. The biomes featured in the game include: beaches, grass lands, jungles, mountains, and the ocean. Dirt roads can be found on the island which provide a clear path for the player to walk on.

Lighting

The game features day and night cycles that change the lighting on the environment. The player cannot see as far during the night and require a torch for visibility.

Camera

The game is played from a first person view. The player's currently equipped tool is visible in front of the player.

HUD

The game features a minimalist HUD which would show what the player is currently holding. The player will need to look at their in-game clock to see their physical health, hunger, thirst, and mental health. The players can view their current inventory by looking inside the backpack that they carry. The crafting menu is inside a book interface.

Collectibles

The player is able to gather materials such as wood, stone, vegetation, and meat as they explore the island. Meat must be collected from killing dinosaurs. Wood can be obtained by chopping down palm trees. Coconuts are also at a random chance of falling while chopping down a tree. Other items are randomly generated on the island for the player to find and collect.

Enemies

The game features a variety of dinosaur species of varying sizes. The behavior of each dinosaur is dependent on their level in the food chain.

Craftable Items

The player is able to use wood to create torches to let them see at night. Bow and arrows are craftable in order to attack dinosaurs from a distance. The raft the player needs to create to escape the island can be created by gathering the proper materials. A book that the player carries contains the possible crafting recipes that the player can use.

Procedural Island Generation

Island generation starts with creating a height map for the terrain. This height map is created using a layered combination of fractals and simplex noise; it is constructed from bottom to top starting with large, tall, dense features and ending with sporadic, small, short features. Lastly a parabolic constraint is applied to give the island a dome like shape ensuring that the edge of the island drops off gradually into the ocean.

Terrain Texturing

The terrain of the island is textured using a combination of sampled height, slope, and simplex noise values. The slope value is used to determine where cliffs and dirt textures will be applied as vegetation becomes less dense with slope increase. For lesser slope values the height value is then used to split the terrain into three biomes of beach, meadow/jungle,

and mountain. Finally, simplex noise is used to split the meadow and jungle into two separate biomes.

Level of Detail System

A level of detail (LOD) system is implemented to manage both the level of graphical detail and level of interactivity of static (non-moving) objects based on their distance from the player. For example: nearby trees are physical objects with detailed models; far away trees are non physical objects with low resolution billboards. The LOD system divides the island into evenly sized square sectors arranged in a 2-dimensional array. All static objects are placed into these sectors based on their initial position in the world. Every few frames the sectors closest to the player recalculate and apply the level of detail of all of the static objects contained within them.

The Game

Overview

The player must move around a dinosaur infested island while trying to find a way to escape. The player must gather resources in order to build an escape raft. The player will lose if they are killed by the dinosaurs.

Story

The game begins with the player's airplane crashing on a mysterious island while flying to reach a tropical vacation destination. The player wakes up off the shore of a mysterious island after the accident and swims to land. discover he is the only survivor. As the player explores the island, he discovers that he is not alone...dinosaurs are living on the island! Scavenging materials from the island, the player must build a raft to escape before he can be devoured by dinosaurs!

Controls

The player can be controlled with either a mouse and keyboard or an Xbox 360 Controller.

Victory Conditions

The player wins the game when they succeed in gathering up enough materials to create a raft and leave the island.
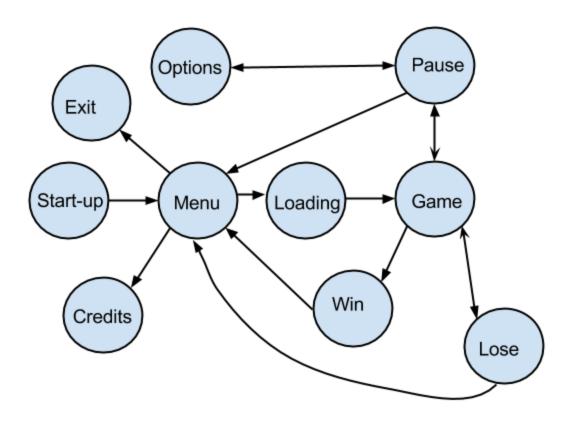
Lose Conditions

The player loses the game when they are killed by the dinosaurs on the island or have their physical health reduced to zero by environmental hazards like toxic vegetation or falling from tall heights.

Scoring

The game keeps track of the number of days the player has been on the island, the number of damage the player has done to dinosaurs, and the number of damage the dinosaurs have done to the player. Only the days survived is visible while roaming the island with the other stats only visible upon the player either winning or losing.

State Diagram

The Player

Overview

The player needs to navigate the island trying to gather materials to survive and eventually get off the island. The player can use tools such as axes, spears, torches, and a bow to survive on the island.

Inventory

The player has a limited inventory, so that they cannot carry everything they acquire on the island all at once. The player needs drop any extra items that they cannot carry with them to make room for more important ones. Looking at the inventory will not pause the game, so dinosaurs can still harm the player.

Crafting

The player can craft various materials on the island to create new tools. Crafting can also be useful in creating weapons or creating things such as campfires. The crafting book has a number of recipes to show the things that the player can create. When each recipe is viewed, a list of the materials required to create the item described by the recipe are displayed. In addition, text is shown to tell the player how many of that recipe can be crafted. Looking at the crafting book will not pause the game, so dinosaurs can still harm the player.

Physical Health

The player has a limited amount of physical health that will be decreased if attacked by dinosaurs or injured by falling a great height. The player can also acquire food on the island that can heal the player outside of sleep. If the player is greatly injured, they will not be able to move as fast. If the player's physical health is reduced to zero, the player loses the game. The physical health meter is visible from the player's stats screen and is

represented by the red cross icon. The icon empties as the player is injured and fills up as the player heals themselves.

Hunger

The player has a hunger meter that will slowly decrease over time. If the player runs, the hunger meter will go down faster. If the player is too hungry, the player's attacks will not be as effective against dinosaurs. Hunger can be replenished by eating food found on the island. The hunger meter is visible from the player's stats screen and is represented by the bread icon. The icon empties as the player's hunger grows and fills when the player eats food on the island.

Mental Health

The player's mental health decreases during the night on the island and by eating poisonous berries. The player's mental health is decreased at a slower rate at night if the player has a torch out. If the player's mental health is low, the player's screen will shake and the player will begin to hear voices that will block out other sounds in the game. The player's mental health can be recovered by using the campfires to sleep. The player's mental health meter is visible from the player's stats screen and is represented by the skull icon. The icon empties as the player's mental state worsens and fills when the player uses campfires to sleep.

Thirst

The player has a thirst meter that will slowly decrease over time. The player's thirst decreases more rapidly while the sun is out. If the player is too thirsty, the player will walk slower, have weaker attacks, and the screen will shake Thirst can be replenished by drinking fresh water. The thirst meter is visible from the player's stats screen and is represented by the water drop icon. The icon empties as the player's thirst grows and fills when the player drinks water.

Combat

The player can use weapons to attack the dinosaurs on the island. The player can use axes, torches, as well as their fists to attack dinosaurs at short range, spears are used at medium range, and bows are used for long range combat.

Movement

The player can walk, run, jump, and crouch. A player can only run while on the ground, so they cannot start running mid-air. The player can run to get away from dinosaurs, jump to get over obstacles, and crouch to slow their movement to decrease dinosaurs' detection of them.

Artificial Intelligence

Overview

The dinosaurs on the island will behave differently depending on their species. Smaller dinosaurs will travel together and attack the player in packs. Larger dinosaurs will travel alone and be more aggressive if the player is spotted. The dinosaur AI is set up so that dinosaurs will interact with each other either through sticking together and hunting as a pack, or by chasing and attacking each other. This adds more dynamic to the gameplay by creating a more realistic environment as well as ensuring that the player isn't the only thing on the island that the dinosaurs are hunting.

Enemy Behavior

Flocking

Small dinosaurs tend to stay together and move in groups. Flocks have a common destination point that they will walk towards

Attacking

Small dinosaurs tend to stay together and attack the player in groups. These dinosaurs chase and attack together, creating a formidable opponent. large dinosaurs hunt and attack alone.

Fleeing

Small dinosaurs flee as soon as a larger dinosaur is spotted. Herbivorous dinosaurs flee the player if they are attacked.

Food Chain

Attacking and fleeing behavior is determined by the food chain level of the dinosaurs/player involved. A dinosaur on a higher food chain level will attack those of a lower level, while lower levels will attempt to flee. Herbivorous dinosaurs have the lowest value and will not attack another dinosaur or the player unless provoked.

Movement

Dinosaurs move about the terrain following invisible, precalculated waypoints. They attempt to steer themselves around obstacles like trees when such obstacles are detected.

Aggression

Dinosaurs change focus on their current target if being attacked by something else. They will also attack if another dinosaur or the player gets too close after a kill has been made, simulating the dinosaur eating the kill.

Enemy Packs

Out of Vision Packs

When out of view, dinosaur packs are represented as a single entity that will still wander around the island and hunt for food. These packs will have no collision detection and simply move towards the item they need (food/water), information in pack will be contained as variables

In Vision Packs

When in viewing range, the packs become multiple dinosaurs that interact with the environment on their own. They will have collision detection and behave realistically.

Graphics Design

Overview

The game required models and environment assets from other sources. The environment is randomly generated when the game is loaded up, placing these models around the island at varying size and rotation.

Models

The game features different dinosaur models to represent different species. The environments will also have different models depending on the area (types of trees, obstacles, etc.). Dinosaur species also have various height differences and colorations to make them more unique and not completely identical amongst members of the same species. The dinosaur species included are raptors, stegosauruses, and tyrannosaurus rex.

Sound Design

Overview

The game features ambient noise for the player to listen to as the island is explored. Dinosaurs also make noise so the player will be able to sense their presence. The player also make grunting noises depending on the situation

Sound Effects

Dinosaurs ave sounds to indicate their state. If about to attack the player, the dinosaurs will roar. If the dinosaurs are attacked, they will let out a cry of pain.

The player will grunt if they are attacked from a dinosaur, or fall from somewhere too high. The player also makes noise walking, and the sound changes based on whether they are walking or running. The player also makes noise when jumping. The player will also hear voices in their head when their mental health goes below the set amount.

The Ax, Spear, and Torch all make different noises for swinging these items. The Bow makes a sound for pulling back, as well as a sound when releasing the arrow.

The Crafting Menu has sounds for opening/closing the book for crafting. While browsing through the different recipes, a sound will be played for flipping pages. Also, a sound will be played once the player clicks on the craft button to let you know the item is being crafted.

The Inventory plays sounds for opening/closing the backpack that the player is carrying. There are also different sounds in the Inventory for equipping, destroying, using, and consuming items.

Usable Items

Overview

There are many items on the island that the player can pick up and use. The items can be materials used in crafting, tools to make survival easier, and weapons to combat the dinosaurs. Food can also be found which can either heal or harm the player.

Materials

Wood

Found by chopping down trees, can be used in the construction of a raft, making campfires, and creating other tools and weapons.

Sticks

Crafted from driftwood or logs, can be used in the construction of torches.

Rocks

Found on the ground on the island, can be used to create weapons like a spear or ax.

Flint

Found in various locations on the island, can be used to start fires for torches as well as campfires.

Dinosaur Bones

Acquired from dead dinosaurs and is also randomly scattered on the island, can be used in weapon crafting.

Vines

Can be found on some trees on the island, can be used to create an ax as well as tie parts of the raft together.

Meteors

Can rarely be found in any spot on the island. This spectacular rock is used to craft the rarest of weapons.

Tools

Clock

The player's stats screen, it shows the time of day as well as the player's current health and number of days the player has survived.

Raft

Player needs to craft this to win the game, will require a lot of wood and other supplies in order to escape the island.

Campfire

Can be created using wood and flint, useful for replenishing the player's mental health and advancing the game time ahead in time.

Weapons

Spear

Fashioned out of wood with either rocks or dinosaur bones for the tip. Useful for attacking dinosaurs. The spear is a medium ranged weapon.

Bow

Fashioned out of sticks and vines. Holding in the attack button will increase the damage of the arrows as well as increase their travel distance. The bow is a long ranged weapon.

Torch

Can be held to light up the area around the player. Can scare some dinosaurs away. Slows the deterioration of the player's mental health at night while out. The torch is a short ranged weapon.

Ax

Fashioned out of wood and rocks, used to chop down trees. Can also be used to attack dinosaurs. The ax is a short ranged weapon.

Food

Dinosaur Leg

Obtained by killing dinosaurs, will fill the player's hunger meter more than vegetation. Larger dinosaurs have a chance of dropping more meat upon their death.

Onion

Obtained in grasslands, can be eaten to slightly fill up the player's hunger meter.

Berry

Obtained by locating various bushes in the wild, can be eaten to slightly fill up the player's hunger meter. Will cause the player's mental health meter to lower itself.

Coconut

Can be obtained from palm trees on the island, will replenish the player's thirst.