Design Document – Strain

Overview:

Strain is a top-down twin stick shooter that uses the Unity engine to simulate a zombie apocalypse in real-time around the player. It features zombie virus strains that evolve as they propagate through the population, creating a naturally-occurring difficulty curve and reflecting the spread of real-life viral outbreaks.

Core Fun:

Due to the random nature of zombie virus strains, each playthrough of the game will be different. One playthrough might pit you against zombies that are extremely strong but have poor visibility that can the player can take advantage of, while the next features faster zombies with an enormous infectivity rate resulting in much larger groups of enemies coming after the player. Player engagement comes not only from discovering this variation in enemy type, but from watching in real-time the spread and evolution of the infection. The player will be able to monitor the strains of each zombie via small UI widgets (after acquiring specific items) and use this information to determine the best way to approach situations, or which zombies to prioritize removing from the gene pool.

The player will have 2 main gameplay paths. One involves allowing AI-controlled survivors to join the player and to be used essentially as extra lives should the player die, with control swapping to one of them in such an event. The other features the player getting infected by a strain of the virus, using the stat increases to survive, evolving your strain of the virus by consuming more evolved zombies, and fighting off complete infection by killing and consuming humans. Both paths end in military intervention, however whether the military considers the player an ally or an enemy differs depends on how the player has chosen to survive.

Player View

The camera is located above the player character but at approximately a 60 degree angle, offering the player an overhead view that could be compared to a helicopter surveying a police chase. The view will remain centered on the player character as they move around, with slight amounts of screen shake for effect when the player is hit by a zombie, or shoots a gun.

Key Features
- Strain will feature realistic simulation of infectious disease and predator-prey dynamics based on complex mathematical formulae
- Complex zombie AI that can detect humans based off sight, smell, and sound
- Multiple evolutionary paths for viral strains to follow, resulting in enormous variation in zombie types
- Human AI that will join and fight alongside you against the zombie hordes
- Augmenting your abilities by purposely infecting yourself with specific zombie strains
- Evolution paths including: sight, smell, hearing, speed, strength, and infectivity

The Hook
The main concept is a zombie game in which the fact that the enemies are zombies actually has a meaningful impact on gameplay. They can infect humans with their strains, their strains evolve and mutate as they propagate, and the player can intentionally get infected in order to use improvements from the virus strain to survive. Zombie games in the past have all featured enemies that could easily be replaced with virtually any other enemy. This will be the first real zombie game/zombie apocalypse simulation.

Target Audience
Strain is to be targeted mainly towards males from the 18-40 age range. It will appeal to those interested in science, particularly biology, evolution, disease outbreaks, and predator-prey systems.

Controls
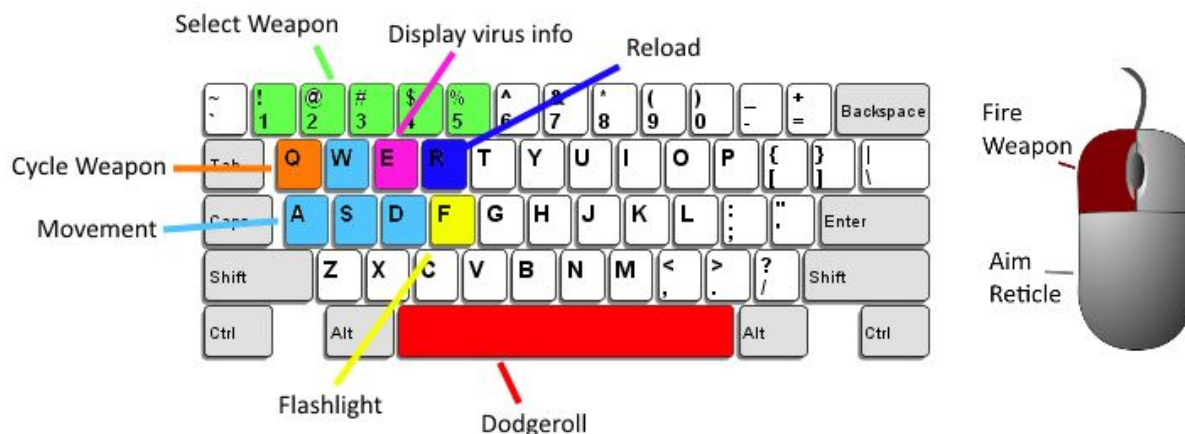
Gameplay Statistics

The zombie virus strains will be represented by chromosome objects, each made up of a series of genes that indicate the virus' proficiency in certain areas. Each character will have base values for things like sight, smell, hearing, damage, health, infectivity, etc that are augmented by virus values in zombies. For uninfected humans, the values won't change physical characteristics, but will impact how their AI reacts to situations such as zombie encounters (fight or flight).

Environment

The game takes place on an island city that is separated into various different regions. There is a central business district, dominated by skyscrapers, a residential area populated by houses, a waterfront shipping region featuring shipping containers and large ships, and a large hospital that will be enterable. The city won't be classically post-apocalyptic, as the game takes place at the very start of infection. As the game progresses the player will see more indications of destruction such as cars on fire, but the initial city will be mostly pristine.

Weapons / power-ups

Basic weapons include a shotgun, assault rifle, pistol, and flamethrower. The player will be able to arm npc humans who have decided to follow you, and when the player dies while they have followers, they will be able to transfer their control to one of the followers. In this way, followers can essentially be used as extra lives. If the player is infected and they have followers, they can either have one of their followers put them down, at which point player control changes as usual, or they can instead embrace the virus and use it to kill and consume their former followers. When the player is infected they will no longer inspire people to follow them, instead humans will try to kill them. The player will have increased health, speed, strength, and senses based on the strain they were infected with, will regenerate health when they eat humans, but will need to eat humans in order to prevent the infection from taking control completely. They will additionally be able to evolve the strain of the virus they were infected with by killing and consuming powerful evolved zombies.

Timeline / Project Milestones

16th October	Alpha Build	Feature complete
6th November	Beta Build	Content complete
19th November	Gold	
26th November	Post Mortem	