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Team LFTCLK’s Horde Survival Game Design Document

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Chris Fitch | Producer, Audio & Animation Engineer

Vance Howald | Lead Developer, Engine Designer

Abhijit Zala | Graphics Engineer

Rohit Punjabi | Gameplay Programmer

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# Game Design

Our Horde Survival game is going to be all about creating an atmosphere of anxiety, and forcing the player to explore their environment while facing unexpected attacks from a myriad of foes.

## The Setting

The game’s major centerpoint will be a cabin the player wakes up in. From within the cabin the player will have to defend against waves of undead enemies as they come. When day comes the player can walk outside into a forest to collect resources that will help them escape. Eventually night will fall again, forcing the player to return to the cabin.

The atmosphere will be dark and unclean, with fog everywhere, low light making the player frequently unsure of what is nearby. There will also be ambient sound effects playing as much randomly as they do for actual gameplay reasons, with the intent being to give the player as little calm as possible.

There will be woods surrounding the outside of the cabin. Unlike the cabin where, though dark, the player can rely on the environment being relatively unharmful, the woods will be fraught with randomly appearing enemies which, because of the low light, will be difficult to defend against.

The art aesthetic will be very pixelated so that we can easily generate art assets. We plan to surprise the player with how creepy low-quality art can be when done right. There will be fog consistently obstructing the player’s vision, and a lot of small, infrequent background animations to create a sense of danger where there is none.

## Gameplay

The game will be a top down shooter. The player will walk around with the W/A/S/D keys, and aim/fire with the mouse. Inside the cabin there will be furniture which can be destroyed by pressing E. This will give the player wood which they can use to fortify the house by also pressing E when standing near a doorway. After five or ten minutes, daytime will come and the player can exit the cabin to continue the search for parts. Again using the E key, the player will be able to walk around and destroy trees for wood, or search areas for motorcycle parts which they need to beat the game. Once the player has collected all the bike parts they will enter the escape segment of the game.

The escape segment will be 2D auto-scroll level, where the player is riding on a bike towards the right while trying to avoid zombies and obstacles. If the player hits either they will slow down, and if they lag behind to the point that they hit the left side of the screen, they will be killed by the undead. The player can hold right to speed up a little bit and regain lost ground, but they won’t be able to steer while doing this.

# Development

While our engine is capable enough for the most basic elements of the game we’ve laid out, there is still some work to be done, and past that it will take concerted effort to ensure the final product is polished and fun.

## Engine Functionality

* AI:
  + The enemy AI will use A\* for pathfinding inside of the cabin.
  + Seeking and obstacle avoidance can be used outside of the cabin because the map geometry will be much more simplistic.
* Physics:
  + As there will be massive groups of enemies, physics must be carefully optimized to handle lots of entities pushing on each other.
* Animation:
  + For enemy and player animations, there will be flipbook-like frames that will be cycled through, and the player’s state will determine what flipbook the animation component is displaying.
  + There will be animations for movement, attacks, resource gathering, and death.
* Collection and Repair System:
  + There will be destructible objects around the map that update the enemy AI’s A\* grid when destroyed.
  + There will be a way to show the player that things are interactable, such as a glow or outline around them when the player is within a certain radius.
* Scene Switching:
  + State of the inside of the cabin and outdoors will be stored so that when the player transitions between them nothing is changed.

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## Building the Game

The actual game will be an incremental process to build, and we’ll be breaking it up into several steps.

### Creating the Cabin

Though it might seem like a simple map, the actual innards of the cabin will need to work in a very specific way to make the game interesting. The idea is that the player will be needing to defend multiple doorways while also making repairs as the undead inevitably break through. This will be especially challenging as the player will not be able to see every doorway in the expansive cabin due to low light and distance. The player will have to use furniture and other materials found around the house to make and repair blockades, and they will have to leave their post at the doorways to find these materials, making it a tough decision.

### Spooky, Scary Monsters

There will majorly be two types of monsters: zombies and ghosts. Zombies will walk slowly towards the play and pathfind around obstacles. Ghosts will move even slower than the zombies, heading straight towards the player, ignoring collisions and dealing more damage than zombies.

To make the hordes more varied, there will be multiple different textures for zombies and ghosts, but only in very minor ways so that we don’t have to do a lot of extra design work. The idea is that the type of zombie or ghost that comes out will be randomized in cosmetically different ways, like missing an arm or wearing sunglasses.

### The Exterior

The player will walk out of the cabin and find themselves in a forest clearing. Immediately around the cabin there will be no trees and only grass, as the player walks away from the cabin they will see some trees scattered around. These trees will become more densely packed the deeper into the forest they go.