

Shadow Shelter - Game Design Document

Overview

Shadow Shelter is a 3D top-down shooter developed in Unity 3D using C#. The game offers an intense "mayhem" gameplay experience where the player must survive waves of enemies while utilizing various power-ups, abilities, and weapons to achieve the highest possible score. The game encourages fast-paced decision-making, strategic gunplay, and mastery of movement mechanics.

Gameplay Mechanics and Design Decisions

Core Mechanics

- **Player Movement and Shooting:**
 - The player can move in all four directions (up, down, left, right) using the keyboard (WASD or arrow keys).
 - The player fires projectiles (bullets) at enemies using fire key (Left Click).
 - The smooth, responsive movement ensures a dynamic feel to gameplay.
- **Weapons System:**
 - The player starts with a default weapon and can pick up other weapons that spawn in designated spawn areas.
 - Weapons include multiple types (e.g., rifles, shotguns, sniper).
 - The player can switch between weapons using the 1, 2, 3, and 4 keys.
 - Each weapon has unique **audio effects** for firing, creating an immersive experience. Different sounds are used for each gun to differentiate the weapons.
- **Power-Up Mechanism:**
 - A special ability is unlocked when the player reaches 1,000 points.
 - The player can press Left Shift to activate the ability, which lasts for 10 seconds and grants the following:
 - **Invulnerability:** The player cannot take damage.
 - **High Speed:** The player's movement speed is significantly increased.
 - **Health Boost:** The player gains a temporary increase in health.
 - The activation of the power-up ability is accompanied by a **distinct audio cue**, enhancing the impact of the special ability.
- **Enemy Waves and Bosses:**
 - Waves of enemies progressively increase in difficulty.
 - Enemy types include drones, tanks, and helicopters, each with unique behaviors:
 - **Drones:** Fast and weak, with erratic movement patterns.
 - **Tanks:** Slow but with heavy health and strong projectiles.
 - **Helicopters:** Move erratically and fire bullets in bursts.
 - Boss fights occur at the end of each wave, featuring higher health and more complex attack patterns.

- Enemies' **bullet fire sounds** vary depending on the enemy type (e.g., drones, tanks, helicopters), each contributing to the dynamic atmosphere of the game.
- **Bullet Hell Mechanic:**
 - Enemies fire projectiles that create dense patterns, forcing the player to dodge skillfully.
 - Enemy bullets increase in speed and density with each wave, creating a "bullet hell" scenario.
- **Health and Survival:**
 - The player's health decreases when hit by enemy bullets or colliding with enemies.
 - Staying alive is the primary objective, with scores based on time survived, enemies killed, and power-ups collected.

Additional Features

- **Minimap:**
 - A minimap is displayed on the screen, showing the positions of the player and enemies.
 - The minimap helps the player easily spot enemies, especially in large levels, and strategize accordingly.
- **Pause Screen:**
 - The game features a pause screen that can be opened by pressing the **Escape** key.
 - The pause screen displays essential game instructions, explaining how to play the game and offering the option to resume gameplay or exit to the main menu.
- **Audio Features:**
 - Background music is played continuously during gameplay, contributing to the high-energy atmosphere of the game.
 - **Weapon Sounds:** Each gun has unique audio when fired, providing an immersive experience. Different weapons like rifles, shotguns, and sniper rifles have distinct sounds for each shot.
 - **Enemy Bullet Sounds:** Each enemy type (drone, tank, helicopter) has its own bullet fire sound, enhancing the immersive combat experience.
 - **Power-Up Audio:** When a player activates the power-up ability, a unique sound cue is played, marking the boost and making it more engaging for the player.
- **Power-Ups:**
 - Power-ups randomly spawn during gameplay, including:
 - **Speed Boost:** Temporarily increases player speed.
 - **Fire Rate Boost:** Increases firing rate for a short duration.
 - **Health Regen:** Restores a portion of the player's health.
 - Power-ups are visually distinct for easy identification.
- **Scoring and Progression:**
 - Scores are calculated based on enemies destroyed, time survived, and power-ups collected.
 - The current wave, remaining enemies, and player score are displayed on the UI.

- **Game Over and Restart:**

- The game ends when the player's health reaches zero.
- A "Game Over" screen displays the player's score with options to restart the game or return to the main menu.



WAVE HUD DISPLAY



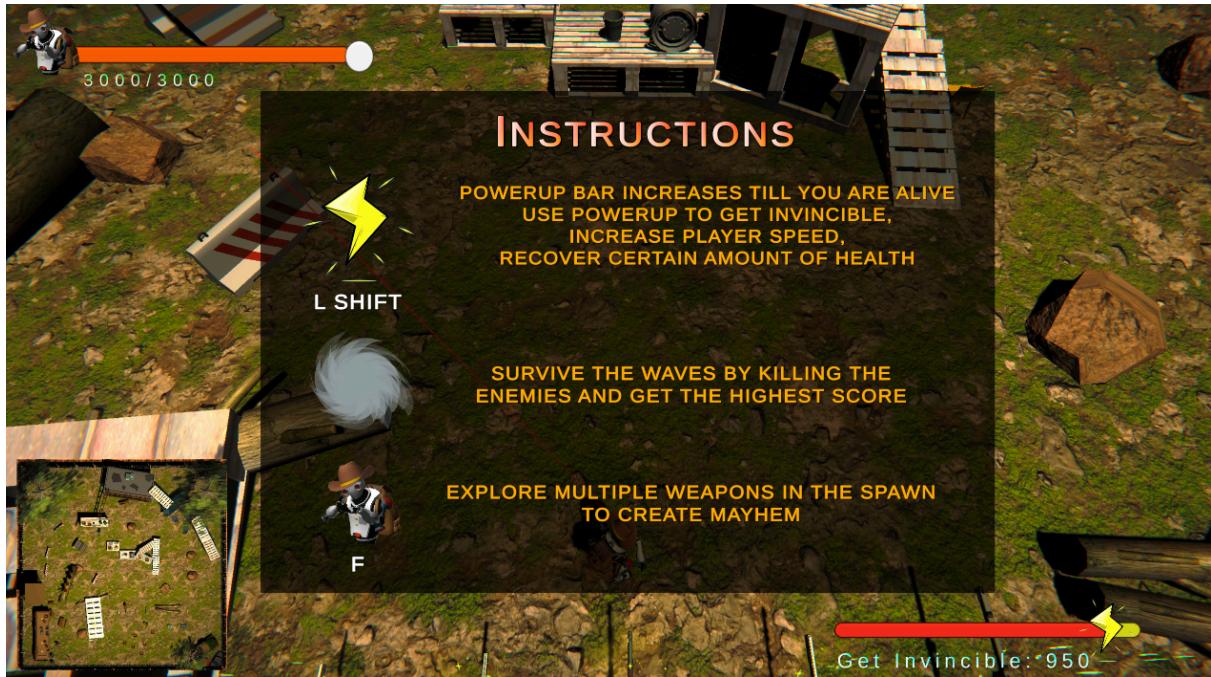
GAMEPLAY SCREEN



GAMEPLAY SCREEN WITH EFFECTS



SCORE SCREEN



INSTRUCTIONS PANEL

Assumptions and Limitations

- The player must use a keyboard to play (mouse controls are not implemented).
 - Power-up effects last for a fixed duration, with no stacking.
 - Enemy AI is deterministic but designed to provide dynamic challenges.
 - The game is designed for single-player experiences only.
 - Player weapons are balanced for strategic use, with no overpowered choices.
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Technologies and Frameworks Used

- **Unity 3D:** The primary game engine for development.
- **C#:** Programming language for scripting game mechanics.
- **Physics System:** Used for collision detection and bullet mechanics.
- **Particle System:** For visual effects such as explosions and power-up indicators.
- **UI Toolkit:** To create responsive and minimalistic user interfaces.
- **Audio System:** To implement various sound effects for weapons, enemies, power-ups, and background music.

Player Interaction

- **Movement:** WASD or arrow keys for directional movement.
 - **Weapon Switching:** Use 1, 2, 3, and 4 keys to switch between available weapons.
 - **Special Ability:** Press Left Shift when the power-up meter reaches 1,000 points.
 - **Power-Up Collection:** Walk over power-ups to collect and activate them.
 - **Survival and Combat:** The player must dodge bullets, kill enemies, and survive as long as possible.
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Shadow Shelter is a chaotic, adrenaline-filled experience where players can test their reflexes, strategic planning, and mastery of mechanics in a highly engaging and polished gameplay environment.