

# 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**

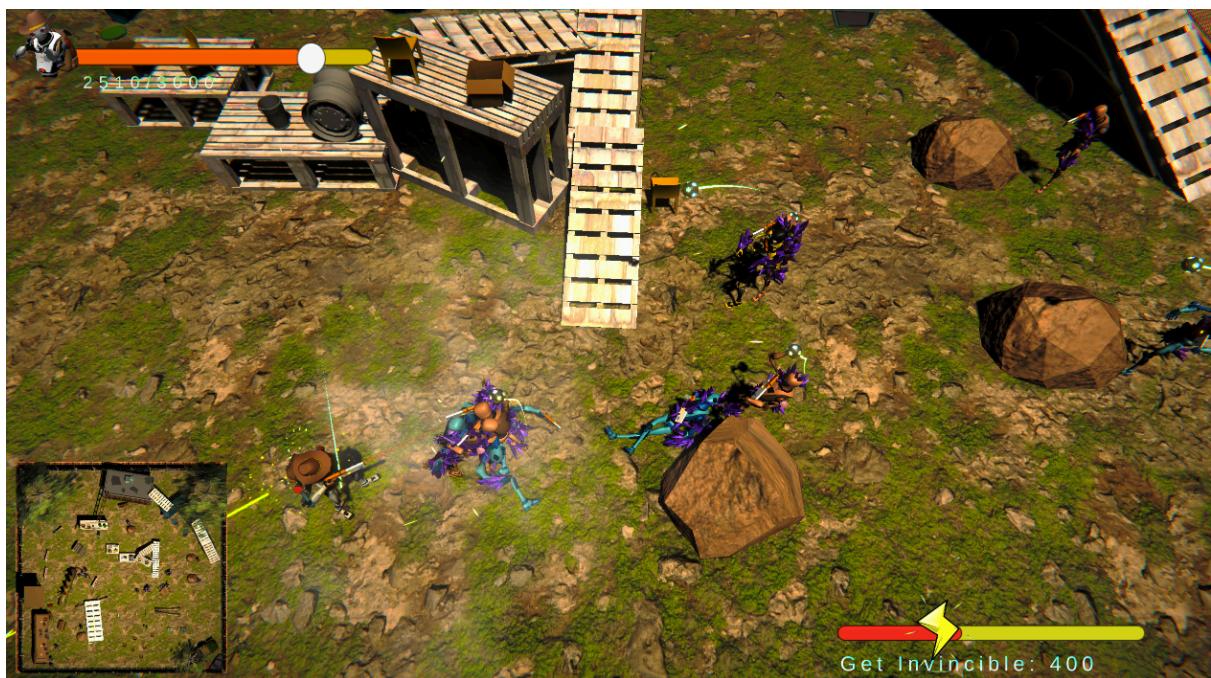
- **Minimap:**
  - A minimap is displayed on the screen, showing the positions of the player and enemies.
  - The minimap helps the player easily spot enemies, especially in large levels, and strategize accordingly.
- **Pause Screen:**
  - The game features a pause screen that can be opened by pressing 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**



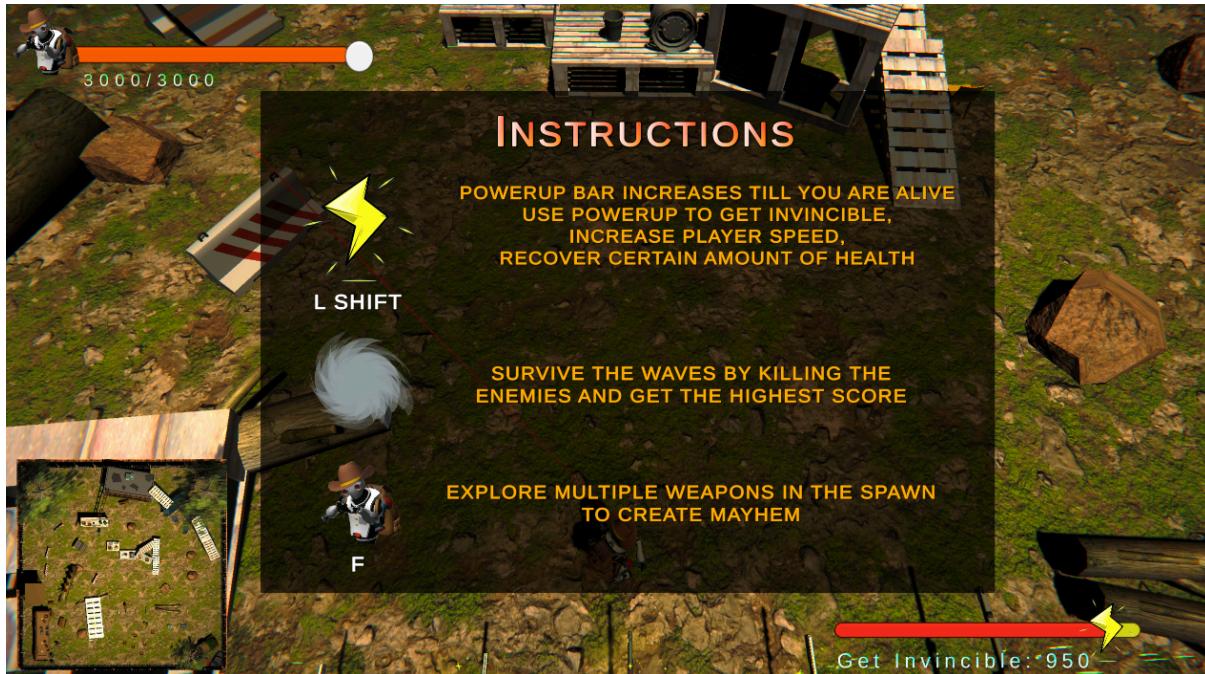
**GAMEPLAY SCREEN**



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.
- 

## 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.
- 

## Developer Information

- **Developer Name:** Ronit Kumar
  - **Email:** roankumar007@gmail.com
  - **Phone:** +91 8383003016
  - **GitHub Profile:** [Insert GitHub Link]
  - **Portfolio Website:** [Insert Portfolio Link]
- 

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.