

Madeleine ("Mad Dog") Callan

## **Concept:**

**Overview:** The game is a side-scrolling platformer inspired by classic Mario and Sonic the Hedgehog games, featuring coin collection, interactive maps, obtaining guns, killing enemies, and progressing through levels. The core gameplay involves guiding a character through various levels, collecting coins, and overcoming obstacles while avoiding or defeating enemies. The game will have a playful, adventurous theme with a focus on exploration and navigation, as well as ghost accumulation.

**Unique Mechanic:** The unique ghost mechanic in this game is tied to the player's ability to defeat enemies. When an enemy is shot down, it transforms into a ghost sprite that floats around the player, creating a haunting visual effect. These ghosts follow the player's movement throughout the level, staying on the same layer as the avatar and enhancing the eerie atmosphere with accompanying sound effects. Accumulating ghosts contributes to the player's score, which persists across levels. The ghosts don't impact gameplay directly but serve as a visual representation of the player's progress, and each new level resets enemies and ghosts while keeping the score intact.

**Genre:** Side-scrolling Platformer

**Story:** In this game, the protagonist embarks on a quest to reach the end of the level, pick up guns, and kill as many enemies as possible to accrue swirling/hovering ghosts. Each level represents a different environment, such as a forest, island, an underwater world, and ice.

**Existing Games:** Inspired by Super Mario Bros. and Sonic the Hedgehog, but with unique level design mechanics and interactive elements tailored to the player's actions.

## **Target Audience:**

- **Age:** All ages
- **Experience Level:** Suitable for both beginners and experienced players who enjoy classic platformer mechanics.
- **Gaming Preferences:** Fans of retro platformers, casual gamers looking for light-hearted gameplay, and players who enjoy exploration and puzzle-solving.

## **Visual Design:**

## **Style:**

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- **Art Style:** Colorful, cartoonish, and vibrant. The visual style will evoke a nostalgic feeling reminiscent of early 90s platformers.
- **Character Design:** The main character will have a friendly design, while enemies will be varied and thematic for each level.

## Core Game Mechanics

### 1. Controls:

- **Mouse Aim:** Players use the mouse to aim the avatar's weapon.
- **Right Mouse Button:** Fire bullets at oncoming enemies.
- **W, S:** Control character motion (forward, backward).
- **Spacebar:** Jump.

### 2. Avatar Selection:

- Before starting the game, players toggle through a few character options. Each avatar has unique abilities or aesthetics.
- Once chosen, the selected avatar enters the ghost-infested world.

### 3. Bullets and Guns:

- Bullets follow realistic projectile physics, with an initial angle dependence.
- All bullets have consistent speed and size.
- Guns automatically pick up when the avatar approaches them on the ground.
- Maximum of 3 guns available, each with distinct sounds, bullet appearances, and visual design.

### 4. Enemy Types:

#### ◦ **Smaller Enemies:**

- Require three shots to defeat.
- Fast and agile, they swarm the player.

#### ◦ **Bigger Enemies:**

- Tougher opponents.
- Need five shots to take down.
- Slower but more resilient.

### 5. Bullet-Enemy Interaction:

- Bullets collide with enemies, preventing them from passing through.

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- Upon impact, enemies transform from their original sprite to an explosion sprite.
- Accompanying sound effects enhance the satisfaction of successful hits.

### 6. **Ghost Transformation:**

- After defeating an enemy, it transforms into a ghost sprite.
- Ghost physics:
  - Adjusted momentum and friction for a floaty, ethereal feel.
  - Ghosts collect around the avatar, remaining on the same layer.
  - They "float" alongside the avatar's motion, creating a haunting visual effect.
  - Sound effects add to the eerie atmosphere.

### 7. **Physics of Diverse Environments:**

- Terrain creates different physics:
  - **Underwater Level:**
    - Slight drag on avatar motion, simulating swimming. The more ghosts you have, the faster you will move.
    - Godot physics engine assists in achieving this effect.
    - Bubble sprites periodically pop up, emphasizing the underwater theme.
  - **Ice Level:**
    - § Friction is reduced on ice tiles, making the avatar slip and slide, and affects player speed. The more ghosts you have, the easier it will be to run, and friction will be increased.
    - § Snowflake sprites added to make the game more visually appealing, also simulating wind

### 8. **Scoring and Progression:**

- Points accumulate as ghosts are acquired.
- Levels flow seamlessly, one after the other.
- Enemies and ghosts reset at the start of each level, but the score stays the same.

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- The character's ghosts will swirl towards a center point as soon as the level is completed, with audio effects.

**9. Player Survival:**

- Players lose hearts if touched by an enemy more than once.

The first touch results in a point deduction; the second will result in a loss of a heart. Five hearts initially provided- This amount will be adjusted based on gameplay difficulty.

**Scope of Demo:**

What needs to be built: The core gameplay mechanics (ghost system, weapon customization, environment physics, health status, point collection) will likely need to be built, while standard platforming elements (movement, jumping, basic enemy AI) could be provided by a template.

- Enemy transformation into ghost sprites upon defeat.
- Ghost physics (floating movement, momentum, and friction).
- Ghost accumulation system (ghosts float around the avatar).
- Heart-based health system
- Ghost accumulation system tied to scoring.
- Point system that persists across levels.
- Sprite design
- Environment/level design

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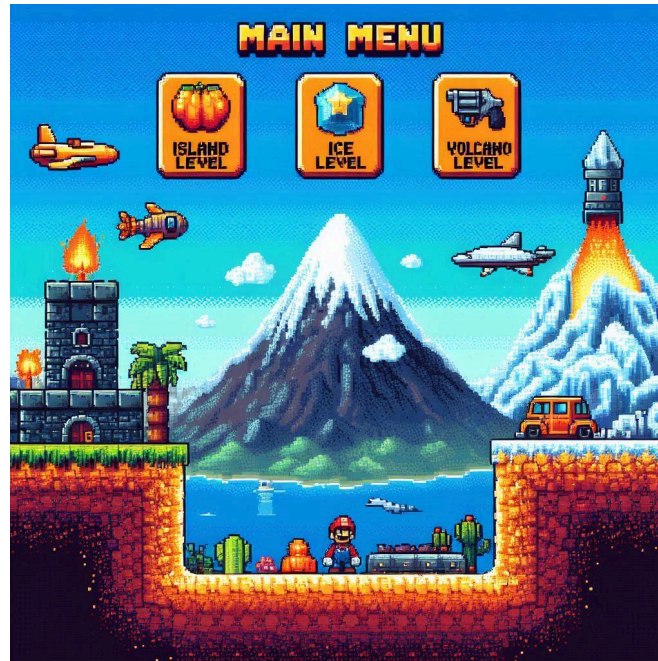


Figure 1: Main Menu

The main menu will feature the avatar in the designed aesthetic of the game.

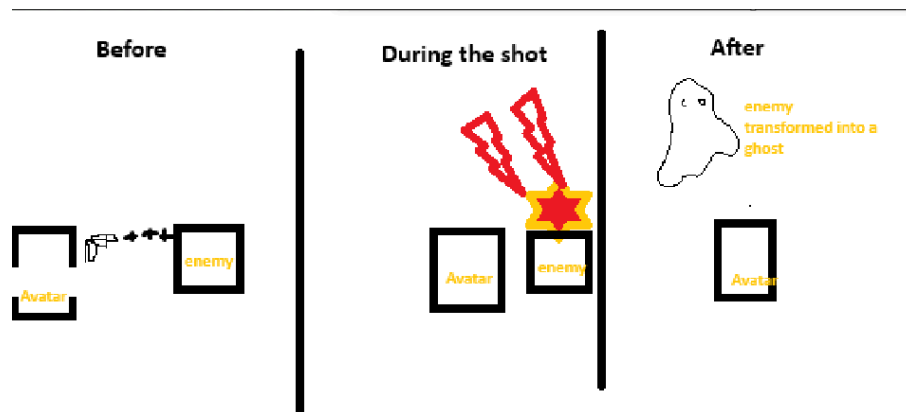


Figure 2. Basic step-by-step of the gun/ghost mechanic

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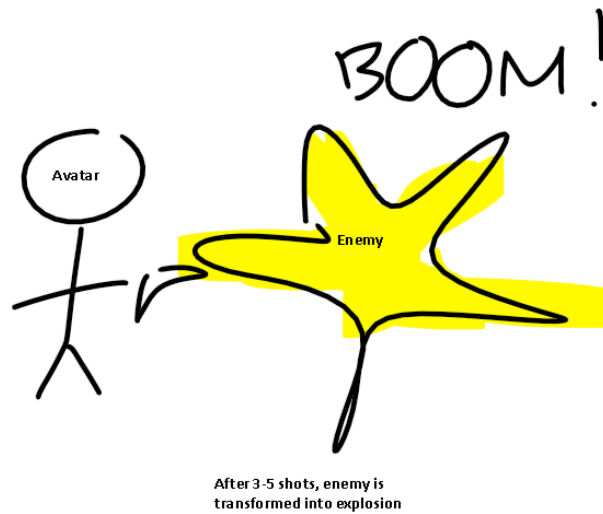


Figure 3: After 3-5 shots, the enemy is transformed into an explosion sprite.

The explosion will occur after the bullet makes more than 1 contact point, and then ghost will come from the explosion.

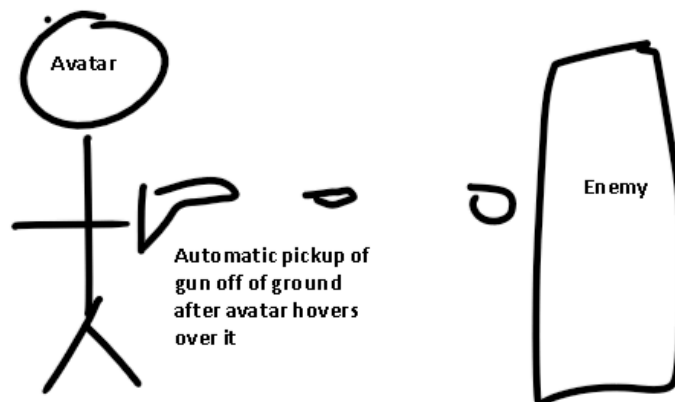


Figure 4. The bullets are shot out of a gun that has automatic pickup from the ground.

The types of guns would be splayed. The first type of gun would appear as a basic weapon, and then as more ghosts are killed, more types of guns pop up.

Avatar has ghost trailing user's motion

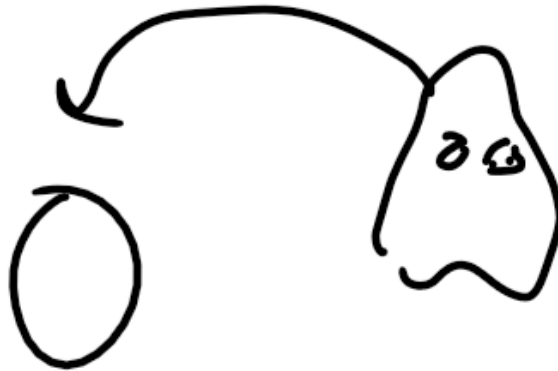


Figure 5: After the enemy has been killed, a ghost appears and trails behind the main character.

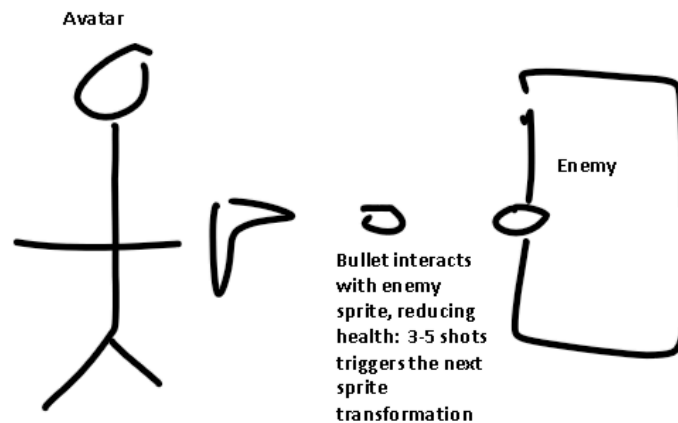


Figure 6. 3-5 shots of impact kill the enemy. Greater than 1 touch of the enemy results in a loss of one heart. 5 hearts total in a level.

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W and S will control the direction of the avatar's motion, with the right mouse controlling aim of gun

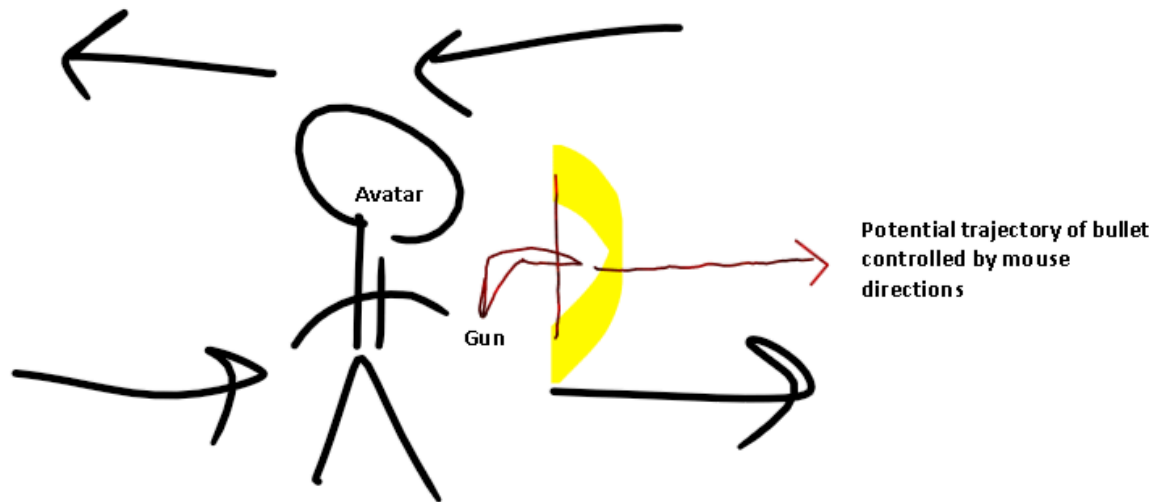


Figure 7. The mouse controls the aim of the gun, and a circumference of  $\pi$  radians delineates the curve of the gun's aim.