Capybara Shoot'em Up

User Manual & Strategy Guide

Music-Reactive Space Combat

Version 0.9

October 6, 2025

Navigate through waves of enemies in this music-synchronized shoot'em up adventure!

Quick Start

1. Build the game: `make`

2. Run: `./bin/shootemup`

3. Use **WASD** or **Arrow Keys** to move

4. Press **Space** to shoot

5. Press **P** to pause

Contents

1 Introduction

1.1 Welcome

Welcome to **Capybara Shoot'em Up**, a thrilling music-reactive space combat game where the intensity of gameplay synchronizes with bass patterns in the soundtrack. Face 10 unique enemy types, master 6 weapon modes, and survive through 9 challenging phases!

1.2 Game Features

- ♫ **Music-Reactive Gameplay**: Enemy waves spawn based on bass patterns

- 🚀 **10 Unique Enemy Types**: Each with distinct behaviors and attack patterns

- ✪ **6 Weapon Modes**: Single, Double, Spread, Rapid, Dual, and Charge

- ★ **4 Powerup Types**: Energy, Shield, Hull, and Weapon upgrades

- ⚡ **Energy Mode System**: Switch between Offensive and Defensive modes

- ☠ **Epic Boss Battles**: Face challenging boss encounters

- 📈 **Progressive Difficulty**: 9 phases of increasing challenge

1.3 System Requirements

> **Minimum Requirements:**
> - **OS**: macOS 10.14+, Linux (Ubuntu 20.04+), Windows 10+
> - **Processor**: 2.0 GHz dual-core
> - **Memory**: 2 GB RAM
> - **Graphics**: OpenGL 3.3 compatible
> - **Storage**: 50 MB available space
> - **Audio**: BASS audio library (for music-reactive features)

2 Installation

2.1 Prerequisites

2.1.1 macOS

```
# Install Homebrew
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/
    Homebrew/install/HEAD/install.sh)"


# Install Raylib
brew install raylib


# Install build tools
brew install gcc make pkg-config
```

2.1.2 Linux (Ubuntu/Debian)

```
sudo apt update
sudo apt install libraylib-dev build-essential pkg-config
```

2.2 Building the Game

1. **Download or clone the repository**

2. **Navigate to the project directory:**

```
cd capybara-project
```

3. **Build the game:**

```
make
```

4. **Run the game:**

```
./bin/shootemup
```

> ✔ Success!
>
> If the build completes without errors, you'll see the executable in `bin/shootemup`. You're ready to play!

3 Controls

3.1 Basic Controls

Key	Action
W / ↑	Move up
S / ↓	Move down
A / ←	Move left
D / →	Move right
Space	Shoot
P	Pause/Unpause
ESC	Quit game

Table 1: Basic Movement and Combat Controls

3.2 Advanced Controls

Key	Action
1-6	Select specific weapon mode (1=Single, 2=Spread, 3=Triple, 4=Burst, 5=Rapid, 6=Dual)
R	Cycle through weapon modes
Q	Toggle Energy Mode (Offensive/Defensive)
E (hold)	Use special ability (Offensive: Devastating Attack, Defensive: Enhanced Shield)
Hold Space	Charge weapon (Charge mode only)

Table 2: Advanced Combat Controls

> 💡 **Pro Tip**
>
> Hold Space to fire continuously! The weapon has heat management, so watch your overheat indicator.

4 Heads-Up Display (HUD)

4.1 HUD Layout

The game features a two-tier HUD system:

Top HUD: Phase — Progress — Time — Enemies
PLAY ZONE (30px to 500px)
Bottom HUD: Hull — Shield — Energy — Score — Weapon Info Mode — Power — Damage

4.2 Top HUD Elements

- **Phase Name**: Current wave phase (e.g., "Warm-Up", "Tank Squadron")

- **Progress Bar**: Visual progress through current phase

- **Game Time**: Elapsed time in MM:SS format

- **Enemy Count**: Number of active enemies (red text)

4.3 Bottom HUD Elements

4.3.1 Ship Status (Left Side)

Bar	Color	Description
Hull	❤️ Red	Your ship's health. Depletes when shield is down.
Shield	🔵 Cyan	Regenerating shield. Absorbs damage before hull.
Energy	⚡ Yellow	Powers special abilities. Regenerates over time.
Mode	⚙️ Orange/Cyan	Current energy mode with bonus indicator.

Table 3: Ship Status Indicators

4.3.2 Weapon Info (Center)

- **Weapon Mode**: Current firing mode (Single, Double, Spread, etc.)

- **Power Level**: Visual sockets showing weapon powerup count (0-3)

- **Damage Per Bullet**: Color-coded damage value with active multipliers

- **Charge Indicator**: Shows charge level for Charge mode

4.3.3   Score (Center-Right)

Large gold number displaying your current score. Earn points by:
- Destroying enemies (varies by type)
- Collecting powerups (+50 each)

5   Gameplay Mechanics

5.1   Ship Systems

5.1.1   Hull Integrity

Maximum: 100 HP
Regeneration: None (use Hull powerups only)
Death: When hull reaches 0 (unless you have weapon powerups)

Your hull is your last line of defense. Damage is **permanent** unless you collect rare Hull powerups. Protect your shield!

5.1.2   Energy Shield

Maximum: 100 points
Regeneration: 2 points/second (after 3-second delay)
Enhanced Regen: 4 points/second in Defensive mode (when energy full)

Your shield regenerates automatically but requires a brief cooldown after taking damage. Shield powerups provide instant full recovery.

5.1.3   Energy System
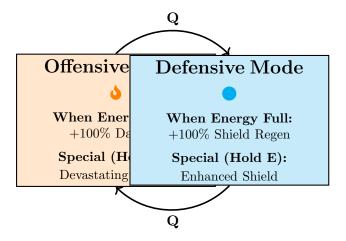
Maximum: 100 points
Regeneration: 10 points/second
Sources: Natural regen + Energy powerups (+20%)

Energy powers your special abilities. Energy powerups are common drops from most enemies.

5.2   Energy Modes

Q

Offensive   **Defensive Mode**

🔥   🔵

When Ener   **When Energy Full:**
+100% Da   +100% Shield Regen

Special (H   **Special (Hold E):**
Devastating   Enhanced Shield

Q

> **💡 Strategy Tip**
>
> Switch modes based on the situation! Use Offensive when you have high health and want to deal maximum damage. Use Defensive when low on health to boost shield regeneration.

5.3 Weapon Heat Management

Heat: 20% ✅ Safe	
Heat: 50% ⚠️ Warning	
Heat: 90% Critical!	
Heat: 100% OVERHEATED	

- **Heat Generation**: 8% per shot
- **Cooling Rate**: 30% per second
- **Overheat Penalty**: 3-second forced cooldown (cannot shoot)

> **⚠️ Warning**
>
> Watch your heat! If you overheat, you'll be defenseless for 3 seconds. Learn to fire in bursts!

6 Weapon Systems

6.1 Weapon Modes

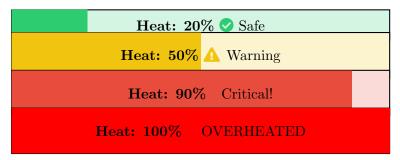| Mode	Key	Bullets	Description
Single	1	1	High damage single shot. Best for precision.
Double	2	2	Two bullets at slight angles. Balanced option.
Spread	3	3	Wide spread pattern. Great for coverage.
Rapid	4	1	Single shot, 2× fire rate. High DPS.
Dual	5	2	Two parallel bullets. Consistent damage.
Charge	6	Varies	Hold to charge, release for burst.

Table 4: Weapon Modes Comparison

6.2 Base Damage Per Bullet

6.3 Weapon Powerup Multipliers

Collect ⭐ Weapon powerups to increase your damage!

1.0x $\longrightarrow$ **1.5x** $\longrightarrow$ **2.0x** $\longrightarrow$ **2.5x**

Level 0   Level 1   Level 2   Level 3

Maximum Damage: Single mode × 2.5x powerup × 2x offensive = **15.0 damage per bullet!**

Mode	Damage/Bullet	Total Damage	Best For	
Single	3.0	3.0	Single targets, precision	
Double	1.5	3.0	General purpose	
Spread	1.0	3.0	Multiple targets, area	
Rapid	1.5	3.0/sec × 2	Sustained DPS	
Dual	1.5	3.0	Reliable hits	
Charge	1.0 × bullets	Varies	Burst damage	

Table 5: Weapon Damage Breakdown

6.4 Damage Calculation Formula

Damage Per Bullet =

Base Damage × Weapon Multiplier × Offensive Bonus

(Offensive Bonus = 2× when energy is FULL in Offensive mode)

7 Powerup System

7.1 Powerup Types

Type	Visual	Effect	Rarity
Energy	💡 Yellow	Restores 20% energy	Common
Shield	🔵 Cyan	Fully restores shield	Uncommon
Hull	❤️ Red	Repairs 20% hull	Very Rare
Weapon	⭐ Orange	Increases weapon level	Rare

Table 6: Powerup Types and Effects

7.2 Powerup Behavior

- **Drift**: Powerups drift left at 25 pixels/second

- **Magnetic Collection**: Attracted to you within 80 pixels

- **Lifetime**: 15 seconds before despawning

- **Fade-Out**: Last 3 seconds show fade effect

- **Score Bonus**: +50 points per powerup collected

> ✔ Collection Tip
>
> Stay near powerups to trigger magnetic attraction! They'll fly toward you automatically.

7.3   Weapon Powerup Revival System

> **💡 Extra Lives!**
>
> Each weapon powerup level acts as an **extra life**! When your hull reaches 0:
> 1. One weapon level is consumed
> 2. Hull restored to 33%
> 3. Shield restored to 50%
> 4. Golden revival aura appears for 2 seconds
>
> With 3 weapon powerups, you have **4 total lives**!

8   Enemy Types

8.1   Enemy Overview

The game features 10 unique enemy types, each with distinct behaviors:

Enemy	Difficulty	Health	Behavior
Grunt	●	Low	Basic straight movement
Swarm	●	Very Low	Small, numerous, fast
Speeder	●●	Low	Fast zig-zag movement
Zigzag	●●	Medium	Unpredictable patterns
Bomber	●●●	Medium	Area attacks
Tank	●●●	High	Slow, heavy armor, missiles
Shield	●●●	Medium	Rotating shield protection
Ghost	●●●	Medium	Phase in/out ability
Elite	●●●●	High	Advanced AI
Boss	●●●●●	Very High	Complex patterns

Table 7: Enemy Types by Difficulty

8.2   Enemy Projectiles

Enemies fire 4 types of projectiles:

Type	Speed	Characteristic
Laser	Fast	Straight line, basic
Plasma	Medium	Slight homing (30%)
Missile	Medium-Fast	Strong homing (70%), explosive
Energy Orb	Slow	Wave motion, piercing, explosive

Table 8: Enemy Projectile Types

> **⚠ Watch Out!**
>
> **Tank enemies** fire 3 homing missiles in a spread pattern! Multiple Tanks can create overwhelming missile barrages. Prioritize destroying Tanks first!

9   Game Phases

9.1   Phase Progression

The game consists of 9 major phases over approximately 9 minutes:

Phase	Name	Description
1	Warm-Up	Gentle introduction, no enemies
2	First Wave	Basic Grunt enemies, no firing
3	Tank Squadron	Heavy armored Tanks with missiles
4	Swarm Attack	Numerous small fast enemies
5	Mixed Assault	Combined enemy types
6	Elite Squadron	Advanced AI enemies
7	Zigzag Chaos	Unpredictable movement patterns
8	Shield Wall	Shielded enemies require timing
9	Final Challenge	All enemy types, Boss included

Table 9: Game Phase Overview

9.2 Boss Encounters

Boss Spawn Time: Approximately 7 minutes (427 seconds)

The Boss features:

- Massive health pool
- Complex attack patterns
- Multiple projectile types
- 360° radial attacks
- Guaranteed powerup drop on defeat

10 Strategy Guide

10.1 Beginner Tips

1. **Use your shield**: Let it regenerate between enemy waves

2. **Collect powerups**: Don't miss them! They drift off-screen quickly

3. **Watch enemy patterns**: Each type has predictable movement

4. **Prioritize threats**: Kill Tanks and Bombers first

5. **Save weapon powerups**: They're extra lives!

6. **Switch energy modes**: Adapt to the situation

7. **Use Spread mode**: Great for beginners due to wide coverage

8. **Stay mobile**: Keep moving to avoid enemy fire

10.2 Advanced Strategies

10.2.1 Weapon Mode Selection

- **Single**: Maximum damage against bosses and tanks

- **Spread**: Best for Swarm enemies and crowd control

- **Rapid**: Consistent DPS against medium enemies

- **Charge**: Burst damage for clearing groups

10.2.2   Energy Mode Tactics

> **Offensive Mode Strategy:**
> - Keep energy full for 2× damage bonus
> - Use devastating attack to clear dense waves
> - Best when you have high hull/shield
>
> **Defensive Mode Strategy:**
> - Use when low on health
> - Enhanced shield ability buys time
> - 2× shield regen helps recovery
> - Switch to Offensive once recovered

10.2.3   Powerup Prioritization

Priority Order:
1. ❤️ **Hull** - Only way to restore hull!
2. ⭐ **Weapon** - Extra lives + damage
3. 🔵 **Shield** - Instant protection
4. 💡 **Energy** - Common, get if convenient

10.2.4   Boss Fight Strategy

1. **Stock up before**: Collect powerups from pre-boss waves

2. **Use Single mode**: Maximum damage per bullet

3. **Stay in Offensive**: Keep energy full for 2× damage

4. **Circle strafe**: Move in circles to avoid radial attacks

5. **Focus fire**: Don't stop shooting!

6. **Save special ability**: Use devastating attack when overwhelmed

10.3   Survival Tips

> ❤️ Stay Alive!
>
> - **Dodge first, shoot second**: Survival ¿ damage
> - **Use the full play zone**: Don't corner yourself
> - **Watch projectile patterns**: Learn to predict
> - **Let shield regenerate**: Back off when shield is low
> - **Don't waste weapon powerups**: They're your extra lives!
> - **Pause when overwhelmed**: Use P to assess the situation

11   Scoring System

11.1   Points Breakdown

Note: Exact enemy scores vary based on enemy power rating

Action	Points	Notes
Grunt destroyed	10	Basic enemy
Tank destroyed	20	Heavy enemy
Elite destroyed	30	Advanced enemy
Boss destroyed	100	Major achievement
Powerup collected	+50	Any type

Table 10: Scoring System

12   Troubleshooting

12.1   Common Issues

12.1.1   Game Won't Build

Error: `raylib.h not found`
   Solution:

```
# macOS
brew reinstall raylib


# Linux
sudo apt install --reinstall libraylib-dev
```

12.1.2   Game Crashes on Start

Possible causes:
- Missing audio file: Place music in `assets/audio/`
- BASS library not installed
- OpenGL driver issues

12.1.3   Low Frame Rate

Solutions:
- Close other applications
- Update graphics drivers
- Reduce particle effects (future option)

12.1.4   Audio Not Playing

Check:
- BASS library installed correctly
- Audio file exists in `assets/audio/`
- System audio not muted

12.2   Performance Tips

- Target: **60 FPS** constant

- Close background applications

- Ensure adequate system resources

- Update to latest version

13 Credits & Acknowledgments

13.1 Development

Capybara Shoot'em Up is an open-source project built with:

- **Raylib** - Graphics and game framework

- **BASS Audio Library** - Music analysis and playback

- **C99** - Programming language

- **Love and Passion** - From the developer community

13.2 Special Thanks

Thank you to all contributors, testers, and players who helped make this game possible!

14 Appendix

14.1 Quick Reference Card

Quick Reference

Movement:
- WASD / Arrows

Combat:
- Space: Shoot
- 1-6: Select specific weapon mode
- R: Cycle weapon modes
- Q: Toggle energy mode
- E: Special ability

System:
- P: Pause
- ESC: Quit

Powerups:
- Yellow: Energy
- Cyan: Shield
- Red: Hull
- Orange: Weapon

Strategy:
- Dodge ¿ Shoot
- Collect everything
- Watch your heat
- Use full screen

14.2 Keyboard Layout

| W |
| A | S | D | SPACE - SHOOT | 1 | 2 | 3 | 4 | 5 | 6 | Q | R | E | P |

Movement   Weapon Modes   Energy/Weapon/Ability   Pause

14.3 Version Information

- **Version**: 0.9 (Development Build)

- **Manual Version**: 1.0

- **Last Updated**: October 6, 2025

Good Luck, Pilot!

May your aim be true and your powerups plentiful!

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