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: `make`

2. Run: `./bin/shootemup`

3. Move: WASD or Arrow Keys

4. Shoot: Space

5. Pause: P

Contents

1 Introduction

Welcome to **Capybara Shoot'em Up**, a thrilling music-reactive space combat game where gameplay intensity synchronizes with bass patterns in the soundtrack.

1.1 Game Features

- **Music-Reactive Gameplay**: Enemy waves spawn based on bass patterns
- **10 Unique Enemy Types**: Each with distinct behaviors
- **6 Weapon Modes**: Single, Double, Spread, Rapid, Dual, Charge
- **4 Powerup Types**: Energy, Shield, Hull, Weapon upgrades
- **Energy Mode System**: Offensive and Defensive modes
- **Boss Battles**: Epic encounters with complex patterns
- **Progressive Difficulty**: 9 challenging phases

1.2 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

2 Installation

2.1 macOS

```
brew install raylib
make
./bin/shootemup
```

2.2 Linux

```
sudo apt install libraylib-dev
make
./bin/shootemup
```

3 Controls

3.1 Basic Controls

3.2 Advanced Controls

Pro Tip: Hold Space to fire continuously! Watch your heat indicator to avoid overheating.

primarycolor!20 **Key**	**Action**
W / Up Arrow	Move up
S / Down Arrow	Move down
A / Left Arrow	Move left
D / Right Arrow	Move right
Space	Shoot (hold for continuous fire)
P	Pause/Unpause
ESC	Quit game

Table 1: Basic Movement and Combat Controls

primarycolor!20 **Key**	**Action**
1-6	Cycle through weapon modes
R	Toggle Energy Mode (Offensive/Defensive)
E (hold)	Use special ability
Hold Space	Charge weapon (Charge mode only)

Table 2: Advanced Combat Controls

4 HUD (Heads-Up Display)

4.1 Top HUD (Phase Information)

- **Phase Name**: Current wave phase

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

- **Game Time**: Elapsed time (MM:SS format)

- **Enemy Count**: Number of active enemies

4.2 Bottom HUD (Ship Status)

primarycolor!20 **Indicator**	**Color**	**Description**
Hull	Red	Ship health. No regeneration.
Shield	Cyan	Auto-regenerates after 3 seconds.
Energy	Yellow	Powers special abilities.
Mode	Orange/Cyan	Current energy mode with bonuses.

Table 3: Ship Status Indicators

4.3 Weapon Information

- **Weapon Mode**: Current firing mode

- **Power Level**: 0-3 weapon powerup level

- **Damage Per Bullet**: Color-coded damage value

- **Active Multipliers**: Shows bonus multipliers

5   Gameplay Mechanics

5.1   Ship Systems

Hull Integrity

- Maximum: 100 HP

- No regeneration (use Hull powerups only)

- Permanent damage

  Energy Shield

- Maximum: 100 points

- Regenerates 2 points/second after 3-second delay

- Enhanced regen in Defensive mode (4 points/sec when energy full)

  Energy System

- Maximum: 100 points

- Regenerates 10 points/second

- Powers special abilities

5.2   Energy Modes

Offensive Mode (Orange)

- **When Energy Full**: +100% weapon damage (2× multiplier)

- **Special Ability (Hold E)**: Devastating Attack - continuous spread of bullets

  Defensive Mode (Cyan)

- **When Energy Full**: +100% shield regeneration (4 points/sec)

- **Special Ability (Hold E)**: Enhanced Shield - larger shield, 50% damage reduction

Strategy: Switch modes with R based on situation! Offensive when healthy, Defensive when low on hull.

5.3   Weapon Heat Management

- **Heat Generation**: 8% per shot

- **Cooling Rate**: 30% per second

- **Overheat Penalty**: 3-second cooldown (cannot shoot)

  Heat Indicators:

- 0-25%: Safe (Green)

- 25-75%: Warning (Yellow/Orange)

- 75-100%: Critical (Red)

- 100%: OVERHEATED (Purple)

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Warning: Don't overheat! You'll be defenseless for 3 seconds. Fire in bursts!

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6 Weapon Systems

6.1 Weapon Modes

primarycolor!20 **Mode**	**Key**	**Bullets**	**Best For**
Single	1	1	High damage, precision shots
Double	2	2	Balanced, general purpose
Spread	3	3	Wide coverage, multiple targets
Rapid	4	1	High DPS, 2× fire rate
Dual	5	2	Consistent parallel hits
Charge	6	Varies	Burst damage, hold to charge

Table 4: Weapon Modes

6.2 Damage Calculation

Damage Per Bullet = Base Damage × Weapon Multiplier × Offensive Bonus

Base Damage by Mode:

- Single: 3.0 per bullet

- Double: 1.5 per bullet (3.0 total)

- Spread: 1.0 per bullet (3.0 total)

- Rapid: 1.5 per bullet (2× fire rate)

- Dual: 1.5 per bullet (3.0 total)

Weapon Powerup Multipliers:

- Level 0: 1.0× (standard)

- Level 1: 1.5× (+50% damage)

- Level 2: 2.0× (double damage)

- Level 3: 2.5× (2.5× damage)

Offensive Mode Bonus:

- 2.0× when energy is FULL in Offensive mode

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

primarycolor!20 **Type**	**Color**	**Effect**	**Rarity**
Energy	Yellow	Restores 20% energy	Common
Shield	Cyan	Fully restores shield (100%)	Uncommon
Hull	Red	Repairs 20% hull	Very Rare
Weapon	Orange	Increases weapon level	Rare

Table 5: Powerup Types

7   Powerup System

7.1   Powerup Behavior

- Drift left at 25 pixels/second

- **Magnetic attraction** within 80 pixels

- 15-second lifetime before despawning

- +50 score bonus per powerup

7.2   Weapon Powerup Revival System

Extra Lives! Each weapon powerup level acts as an extra life!
When hull reaches 0:
• **One weapon level consumed**
• **Hull restored to 33%**
• **Shield restored to 50%**
• **Golden revival aura for 2 seconds**

With 3 weapon powerups = 4 total lives!

8   Enemy Types

primarycolor!20 **Enemy**	**Difficulty**	**Behavior**
Grunt		Basic straight movement
Swarm		Small, fast, numerous
Speeder		Fast zig-zag movement
Zigzag		Unpredictable patterns
Bomber		Area attacks
Tank		Heavy armor, missile barrages
Shield		Rotating shield protection
Ghost		Phase in/out ability
Elite		Advanced AI, multiple attacks
Boss		Complex patterns, massive health

Table 6: Enemy Types and Difficulty

Watch Out! Tank enemies fire 3 homing missiles in a spread pattern. Multiple Tanks create overwhelming barrages. Prioritize Tanks!

9   Strategy Guide

9.1   Beginner Tips

1. **Fire in bursts** to avoid overheating

2. **Let shield regenerate** between waves

3. **Collect all powerups** - they drift away quickly!

4. **Learn enemy patterns** - each type is predictable

5. **Prioritize threats** - kill Tanks and Bombers first

6. **Save weapon powerups** - they're extra lives!

7. **Switch energy modes** based on situation

8. **Use Spread mode** for beginners (wide coverage)

9.2   Advanced Strategies

Weapon Mode Selection:

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

- **Spread**: Best for Swarm enemies

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

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

Energy Mode Tactics:

- **Offensive**: Keep energy full for $2\times$ damage. Use when healthy.

- **Defensive**: Use when low on health. Enhanced shield buys time.

Powerup Priority:

1. Hull - Only way to restore hull!

2. Weapon - Extra lives + damage

3. Shield - Instant protection

4. Energy - Common, get if convenient

9.3   Boss Fight Strategy

1. Stock up on powerups before boss

2. Use Single mode for maximum damage

3. Stay in Offensive mode (keep energy full)

4. Circle strafe to avoid radial attacks

5. Focus fire - don't stop shooting!

6. Save special ability for emergencies

9.4   Survival Tips

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Stay Alive!
- **Dodge first, shoot second**
- **Use the full play zone - don't corner yourself**
- **Learn projectile patterns**
- **Let shield regenerate when low**
- **Don't waste weapon powerups - they're extra lives!**
- **Pause (P) when overwhelmed**

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10   Scoring

primarycolor!20 **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 7: Scoring System

11   Troubleshooting

11.1   Game Won't Build

Error: `raylib.h not found`
    Solution:

```
# macOS
brew reinstall raylib

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

11.2   Low Frame Rate

- Close other applications

- Update graphics drivers

- Target: 60 FPS constant

12   Quick Reference

Movement:
- WASD / Arrow Keys

Combat:
- Space: Shoot
- 1-6: Weapon modes

- R: Energy mode
- E: Special ability

System:
- P: Pause
- ESC: Quit

Powerups:
- Yellow: Energy (+20%)
- Cyan: Shield (Full)
- Red: Hull (+20%)
- Orange: Weapon (+Level)

Strategy:

- Dodge ¿ Shoot
- Collect everything
- Watch heat
- Use full screen
- Switch modes

Good Luck, Pilot!

May your aim be true and your powerups plentiful!