

SPARTAN EXPLORER - Technical Documentation

Overview

SPARTAN EXPLORER is an interactive browser-based game developed using **HTML5**, **CSS3**, and **JavaScript**. The player controls a spaceship from a first-person HUD perspective, collects targets, avoids time constraints, and advances through levels with increasing difficulty.

1. Game Architecture

1.1 index.html

- Defines the core HTML structure.
- Loads visual and interactive components: HUD, radar, ship, overlays.
- References external CSS and JavaScript files.

1.2 styles.css

- Styles all elements using responsive units (% , px).
- Animates radar pulses, target indicators, ship, and overlays.
- Implements a sci-fi visual theme via Google Fonts (Orbitron).

1.3 game.js

Handles the following core logic:

- **Player movement:** via keyboard input
- **Physics:** velocity, deceleration, bounce effect
- **Target behavior:** dynamic random movement
- **Collision detection:** hitbox overlaps
- **Radar updates:** mini-radar and full display

- **Timers and levels:** countdown, bonus time, and difficulty increase
 - **Audio control:** play/pause music and sound effects
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2. Core Features

2.1 Player Ship Navigation

- Controlled using WASD or arrow keys.
- Velocity affected by acceleration and deceleration.
- Collision with screen edges triggers bounce with reduced velocity.

2.2 Radar System

- **Main radar:** full-screen with target signals.
- **Mini radar:** animated with concentric pulse, shows targets and ship center.

2.3 Target Mechanics

- Targets move toward randomly assigned coordinates.
- On collision:
 - Score increases
 - Time is extended by 1 second
 - Explosion sound is played
 - Target is removed from the game

2.4 Level Progression

- Time-limited gameplay starts at 15 seconds.
- Level is completed when all targets are collected.
- New level:

- Increases number of targets (level * 2)
- Increases speed by 20%
- Displays a 'LEVEL COMPLETE' overlay

2.5 Audio Integration

- Background music looped during gameplay.
- Explosion sound triggered upon target hit.
- Game Over stops all sounds.

2.6 HUD Interface

- **Scoreboard:** top-left display
 - **Timer/status bar:** horizontal shrinking bar
 - **Overlays:**
 - Start menu ("Start Game")
 - Level complete
 - Game over screen with score and highscore
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3. Scoring & Highscore

- Each target gives:
 - +1 point
 - +1 second bonus time
 - Highscore is saved using localStorage.
 - Displayed on the Game Over screen.
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4. File Structure

SPARTAN_EXPLORER/

— index.html	# Main HTML structure
— styles.css	# Visual design and layout
— game.js	# Main game logic
— sounds/	# Game sounds (bgmusic, explosion)
— documentation/	# Technical & user documentation

5. Controls

Action	Keys
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Move Up	W / w / ↑
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Move Down	S / s / ↓
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Move Left	A / a / ←
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Move Right	D / d / →
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6. How to Run

1. Clone or download the project.
2. Open index.html in a modern browser.
3. Click **Start Game** to begin.

No installation or backend required.

7. Future Improvements (Suggested)

- Add sound settings (mute/volume control)
 - Introduce mobile/touch controls
 - Implement enemy ships or obstacles
 - Add power-ups or spaceship upgrades
 - Multiplayer leaderboard with backend (e.g. Firebase)
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8. License

MIT License — Free to use, modify, and distribute.

9. Credits

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With assistance from **OpenAI's ChatGPT** — used for generating code, optimizing logic, and documenting features.