**Game Design Document: Pawstacle Dash**

**Title Page**

**Game Name:** Pawstacle Dash  
**High Concept:** Guide a lost dog safely home through busy streets, avoiding traffic and collecting treats along the way.  
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**Section I - Game Overview**

**1.1 Game Concept**

Pawstacle Dash is a side-scrolling obstacle avoidance game where players guide a lost dog through busy streets to reach home. Players must navigate through traffic, collect bones and cookies, and travel the required distance to make home appear.

**1.2 Design History**

This GDD represents the final implementation of Pawstacle Dash, based on the codebase developed using C++ and SFML. The game evolved from a simple obstacle avoidance concept to include collection mechanics and progression elements.

**1.3 Feature Set**

* Intuitive directional movement controls
* Three-lives system with heart indicators
* Dual collectible requirements (bones and cookies)
* Distance-based progression
* Physics-based collision responses
* Visual effects for impacts and victories
* Multiple game states (title, menu, gameplay)

**1.4 Genre**

Side-scrolling obstacle avoidance with collection elements.

**1.5 Target Audience**

* Casual gamers of all ages
* Dog lovers and animal enthusiasts
* Players who enjoy skill-based games with forgiving mechanics

**1.6 Game Flow Summary**

Players start at the title screen, navigate to the menu, and select "Start Game." They control a dog through traffic lanes, collecting bones and cookies while avoiding cars. After reaching the required distance and collecting enough items, home appears. Players must reach home to win or lose all lives to fail.

**1.7 Look and Feel**

* Visual Style: Colorful 2D sprites with clear silhouettes
* Audio: Reactive sound effects and background music that changes with game state
* Atmosphere: Lighthearted and accessible with moments of tension during near-misses

**1.8 Project Scope**

* Single continuous level with increasing difficulty
* Multiple obstacle types (cars moving in different directions)
* Two collectible types (bones and cookies)
* Three distinct game states (title, menu, gameplay)

**Section II - Gameplay and Mechanics**

**2.1 Gameplay**

* **Game Progression:** Players advance by traveling distance and collecting items
* **Mission/Challenge Structure:** Avoid cars, collect required bones and cookies, reach home
* **Objectives:**
  + Collect at least 10 bones
  + Collect at least 10 cookies
  + Travel 3000 meters
  + Reach home when it appears
* **Play Flow:** Navigate through traffic lanes, collect items, avoid collisions, reach home

**2.2 Mechanics**

* **Movement:** WASD/Arrow keys for directional control
* **Objects:**
  + Cars: Move up and down in lanes, cause damage on collision
  + Bones: Collectibles required to make home appear
  + Cookies: Secondary collectibles required to make home appear
  + Home: Final destination that appears when requirements are met
* **Actions:**
  + Move in four directions
  + Collect items by touching them
  + Avoid cars
* **Combat:** No direct combat, but collision avoidance is key
* **Economy:** Collection of bones and cookies
* **Screen Flow:**
  + Title Screen → Menu → Game → Victory/Game Over → Menu

**2.3 Physics**

* Collision detection between dog and cars/collectibles
* Bounce physics when hit by cars
* Screen shake and particle effects on impact

**2.4 Game Options**

* Restart game after victory or defeat
* Return to menu
* Exit game

**2.5 Replaying and Saving**

* No save system implemented
* Players can restart after game over or victory

**Section III - Story, Setting, and Character**

**3.1 Story and Narrative**

After a day of adventure, a loyal dog has wandered too far from home. Players must guide their furry friend back through busy streets, collecting treats along the way while avoiding dangerous traffic.

**3.2 Game World**

* **General Look and Feel:** Busy city streets with sidewalks and multiple traffic lanes
* **Areas:**
  + Sidewalk: Safe area on the left side
  + Road: Multiple lanes with cars moving in different directions

**3.3 Characters**

* **Player Character:** A lost dog trying to find its way home
  + Four directional animations
  + Temporary invincibility and visual feedback when hit
  + Collection animations
* **Non-Player Characters:**
  + Cars: Move in lanes, cause damage on collision
  + Home: Final destination that appears when requirements are met

**Section IV - Levels**

**4.1 Level #1**

* **Synopsis:** A continuous scrolling level representing the journey home
* **Objectives:**
  + Collect 10 bones
  + Collect 10 cookies
  + Travel 3000 meters
  + Reach home
* **Physical Layout:**
  + Sidewalk on the left
  + Three traffic lanes in the center
  + Various spawn points for collectibles and obstacles
* **Progression:**
  + Distance increases as player moves upward
  + Home appears when all requirements are met

**4.2 Training Level**

* No separate training level, but the game starts with lower difficulty
* Tutorial information provided in the menu's Instructions section

**Section V - Interface**

**5.1 Visual System**

* **HUD:**
  + Heart icons showing remaining lives
  + Distance counter
  + Bone counter
  + Cookie counter
* **Menus:**
  + Title screen with animated "Press Enter" text
  + Main menu with four options (Start Game, Instructions, Controls, Story)
  + Game over screen
  + Victory screen

**5.2 Control System**

* Keyboard controls:
  + WASD/Arrow keys: Movement
  + Enter: Select menu options
  + Escape: Exit/return to menu
  + R: Restart after game over or victory

**5.3 Audio**

* **Music:**
  + Title/menu theme
  + Gameplay background music
  + Victory music
  + Game over music
* **Sound Effects:**
  + Collection sounds
  + Impact sounds
  + Menu navigation sounds

**5.4 Help System**

* Instructions available in the menu
* Controls explanation in the menu
* Story context in the menu

**Section VI - Technical**

**6.1 Target Hardware**

* PC with keyboard input
* Minimum specifications: Any system capable of running SFML applications

**6.2 Development Software**

* C++ programming language
* SFML graphics and audio library

**6.3 Network Requirements**

* None (single-player offline game)

**6.4 Game Engine**

* Custom engine built with C++ and SFML
* Entity Component System architecture
* Scene-based game structure

**Section VII - Game Art**

**7.1 Art Style**

* 2D sprites with clear silhouettes
* Colorful, accessible visual design
* Distinct visual language for hazards vs. collectibles

**7.2 Key Assets**

* **Characters:**
  + Dog sprite sheet with directional animations
  + Car sprites with variations
* **Environment:**
  + Scrolling background
  + Road texture
  + Home sprite
* **UI Elements:**
  + Heart icons
  + Menu background
  + Title screen
  + Game over screen
  + Victory screen
* **Effects:**
  + Particle effects for impacts
  + Confetti for victory celebration
  + Screen flash for collisions

**7.3 Technical Requirements**

* Sprite sheets for animations
* Consistent scale and proportion
* Clear visual hierarchy
* Readable at game resolution (1280x768)