Tanks 2

Brief Design Document

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Game’s Design

# Summary

In this game you control a tank which drives around a field and shoots barrels. You are limited by time and the goal is to get the highest score. You can pick from several tanks, each tank has its own movement and gun characteristics. The game includes a realistic aiming and hitting model.

# Features

* Drive a tank and aim its turret.
* Shoot barrels.

# Gameplay

The player start in a field piloting a tank from a 2D, top down perspective. In each round the player has a limited time to shoot and destroy barrels that appear randomly on the field. The player can drive the tank around and turn the turret separately from the tank hull. An aiming guide helps the player to aim at the barrels. Each exploding barrel gives the player a given amount of points. The main goal it to get the highest score in a round.

# Mindset

What kind of mindset are you trying to provoke? Do you want them to take their time to explore more, or rush get to the next stage as fast as possible? Should they feel rushed, or at ease? How do you intend on provoking that sensation?

Technical

# Screen Flow

* Loading Screen
  + Title Screen
    - Main Menu + Tank Select
  + Level
    - Level Complete

# Controls

Tank selection done via the mouse.

Tank hull movement using the arrow keys.

Tank turret movement using the WASD keys.

Shooting using the space key.

# Mechanics

The game features a unique shooting and hitting mechanics. The gun has various characteristics which affect its minimum and maximum damage, minimum and maximum penetration, fire rate, minimum and maximum aiming angle and dispersion rate. The aiming guide is a sector emanating from the end of the gun where the shot is going to be fired. It will be fired closer to the center of the sector with normal distribution. The aiming guide sector angle starts at maximum aiming angle and slowly reduces towards the minimum aiming angle. Each tank operation (e.g. moving, rotating turret, etc.) affects this process by increasing the sector angle. The collision model of the barrel and the tank shell is physics based. The barrel has a constant armor value but the effective armor value is determined by the angle in which the shell hits the barrel. The penetration of each shell is randomly determined when it is fired from the gun based on the min/max penetration values of that gun. The barrel has a constant HP (Hit Points) value, once hit by a shell the damage is randomly calculated from the min/max values of the gun damage.

Level Design

# Consistent Objects

* Static level pieces
  + Ground tiles
  + Map limit tiles (which don’t allow movement)
* Interactive/dynamic level pieces
  + Tank selection button
  + Tank statistics window
  + Tank hull
  + Tank turret
  + Aiming Guide
  + Barrel
  + Barrel explosion
  + Ricochet particle
  + Explosion particle
  + Shell
  + ? Smoke trail for shell
  + ? Fire from gun when shooting
  + Round timer
  + Various text messages
  + HP bar for barrel
  + ? HP lost inscription (when hit)

# Game Flow

1. Player’s tank appears in the middle of the map
2. Barrel appears in a random location across the map
3. Player shoots and hits a barrel
   1. Barrel HP goes down
   2. Barrel explodes
      1. Add constant sum to player score.
      2. Goto 2
4. When timer runs out show the final score
5. Go back to main menu

Development

# Engine Design

* Engine – We are going to use Phaser (latest) for game development.
  + Graphic
    - Image
    - Spritesheet

# Game Classes / Objects

TBD

Development Schedule

* Engine
  + Graphic
    - Tilemap
    - Sprite
    - Backdrop
  + Entity
    - PhysicsEntity
  + World
    - GuiWorld
* Basic Game-specific Objects
  + Player
  + Obstacles
    - Ground
* Advanced Obstacles
  + Cloud Platforms
  + Moving Platforms
  + Frictionless Platforms
* Deadly Obstacles
  + Spikes
  + Falling Rocks
* Enemies
  + Enemy Base Class
  + Zombie Pig
  + Spikey Dudes
* Other Objects
  + Level Goal
  + Power Up
  + Exp drops
  + Sword
  + Shield
  + Boomerang

… etc

Visual Design

# Color Palette

What kind of color scheme are you planning to use?

# Style Attributes / Elements

Any particular visual elements you’re planning to design? Lots of spirals? Outlined with white? How are you going to make important objects like buttons or levers stand out from the other objects?

# Game Objects

What kind of objects are you going to need graphics for? Non-collidable grass? Rocks? Zombie pigs? How should they interact with the player - what kind of visual feedback should they produce when hit/triggered? Might want to use a bullet list or something to describe this section.

# Game Scenery

Do certain levels have certain scenery features you need designed? Level-specific tile types or styles, like rock surfaces in a cave level or mossy rocks in an underwater cave? Do you want any scenery-specific objects? For instance, a forest level might look better with some trees and bushes, or an underwater level might need some coral. Any backdrops, or overlays? Statues of zombie pigs? Might want to use a bullet list or something to describe this section.

# Effects

What kind of visual effects are you going to need for this game? Motion blur? Bloom?

Music/Sound Design

# Musical Style/Elements

What emotions should the music provoke in the player? Do you want fast-paced music to pump the player up, or slow and suspenseful music to keep them on their toes? Any particular elements that should remain more-or-less consistent throughout the game?

# Sound Style/Elements

Should the sounds resemble classic 8-bit games, or should they be live captures from a microphone? Should they all be subtle and unobtrusive, or do you want some to stand out? Any necessary post-processing, like a reverb or delay effect? What kind of auditory feedback are you looking for? Subtle chimes or amped percussion?

# Game Music

What tracks are you going to need for this game? An exciting introductory tune, perhaps? Lively background music for an active city? Might want to use a bullet list or something to describe this section.

# Game Sounds

What ambient sound effects are you going to need for this game? The brush of grass from the wind, or a footstep? What kind of feedback do you need? How will you notify the player of important game events like leveling up, or killing an enemy? Should ambient effects have any specific features? Reverberated, echoed, etc. Might want to use a bullet list or something to describe this section.

Schedule

A rough list of steps towards release. Aim for a portion of the milestone every X days/weeks.

* Pre-alpha
  + Player
  + Obstacles
  + Basic Enemies
  + Basic Level Designs
  + Temporary graphics
  + Game should be playable and the concept should be roughly defined
* Alpha
  + Advanced obstacles
  + Advanced enemies
  + Rough Draft Graphics/Music/Sounds
  + Rough level designs and level-specific assets
  + Game should be near complete and somewhat optimized
  + Assets should be roughed out but well-defined
* Beta
  + Complete set of obstacles/enemies
  + Complete levels
  + Finished assets
  + Debug, debug, debug
  + Optimize, optimize, optimize
* Gamma/delta
  + Release candidates
  + Finalize debugging
* Omega/final!
  + Done!

Other Notes

blah blah blah additional notes, logs, etc.

this is really just a rough design document template, it’s probably lacking in some areas

but the general points should get you across just fine, i just like a bit of leniency in my designs

revisions, revisions, revisions