

CSS 450
Fall 2010
Final Project Report
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User Manual

Overview

Battle it out with a friend in this split screen tank vs tank game. The goal is to reduce your opponent to a smoking pile of rubble (smoke and rubble coming soon). Two controllers will be needed for this game. When the game starts the two tanks are facing each other separated by a digital terrain (digital terrain and sky coming soon).

Display

Player one is on the left side of the screen, player two is on the right. Each player has a main view that always shows what their tank's turret is looking at. The reticle in the center of the main screen indicates what the player's cannon is pointing at. Each player has one tracer round to help them figure out where their shots are going. Each player has an auxiliary view in the upper right corner of their screen. The auxiliary view usually shows a birds-eye view of the world but switches to a 3rd person view of any tracer rounds the player fires. Each

player has a tank status in the upper left corner of their screen indicating how much armor, ammo, and tracer rounds they have. The location of the status and auxiliary views may differ slightly depending on display connection. This is due to the title safe area used in some display connections.

Controls

Players control their tanks with a game pad controller. The left thumbstick controls tank steering (left and right) and movement (forward and backwards). The right thumbstick controls the turret direction (left and right) and cannon angle of inclination (up and down). The right trigger fires regular ammo. The left trigger fires tracer ammo. The start button pauses the game. The back button exits the game.

Game Play

Firing a shot launches the specified ammo in the direction the cannon is pointing, signified by the reticle. However, players should take into account the effect gravity has on their shots. When a player's ammo is depleted (regular or tracer) it takes a few seconds to reload. Once reloaded the player can fire again. If a shot hits an opponent, that opponent's armor is depleted by a certain amount. When a player's armor is reduced to zero, that player has lost the match and can no longer control their tank. After a few seconds the player's Armor is restored for a new match. The victor keeps their existing armor ("one-platoon" style).

Audio Effects

- Game Music
- Moving the tank triggers a tank engine sound.
- Crashing the tanks together triggers a collision sound.
- Firing (either regular or tracer ammo) triggers a cannon fire sound.
- Firing without ammo triggers a dry fire sound.
- Ammo impacts on a tank triggers an impact sound.
- When a tank's armor is reduced to zero an explosion sound is triggered.

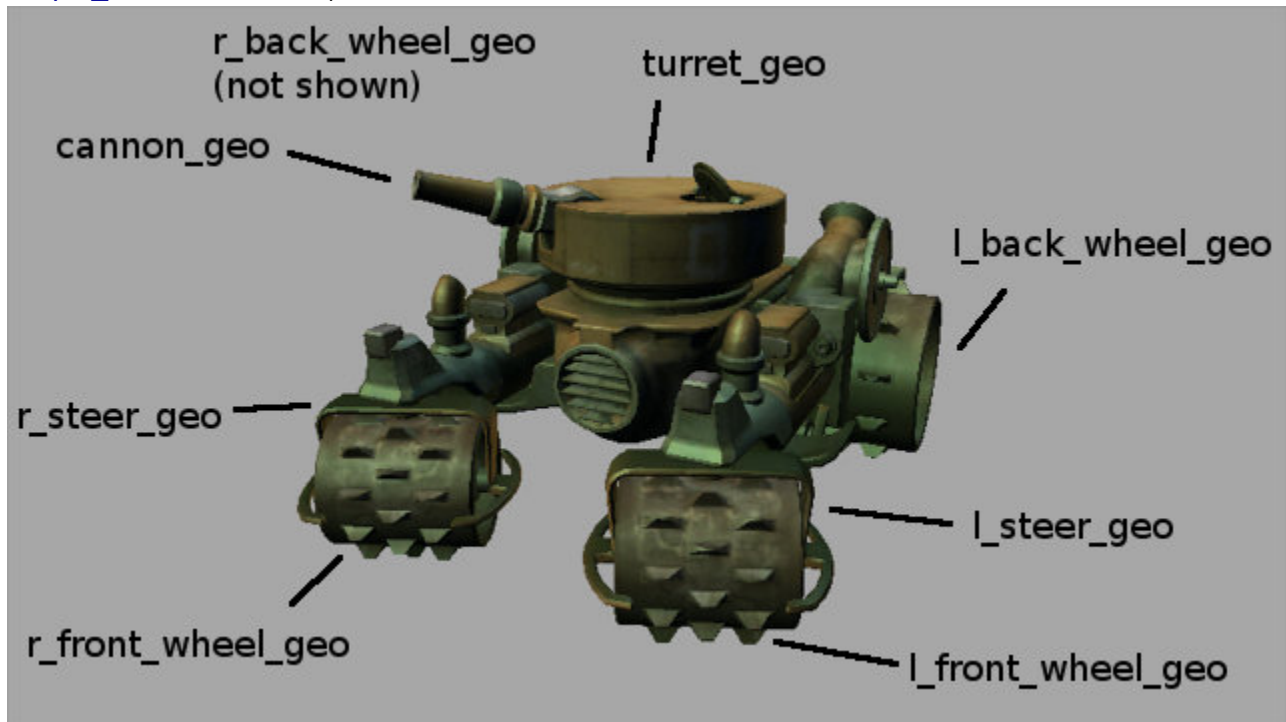
Tactile Effects

- When a player's tank is hit, the player's controller vibrates briefly.
- When a player's tank is destroyed, the player's controller vibrates for an extended amount of time.

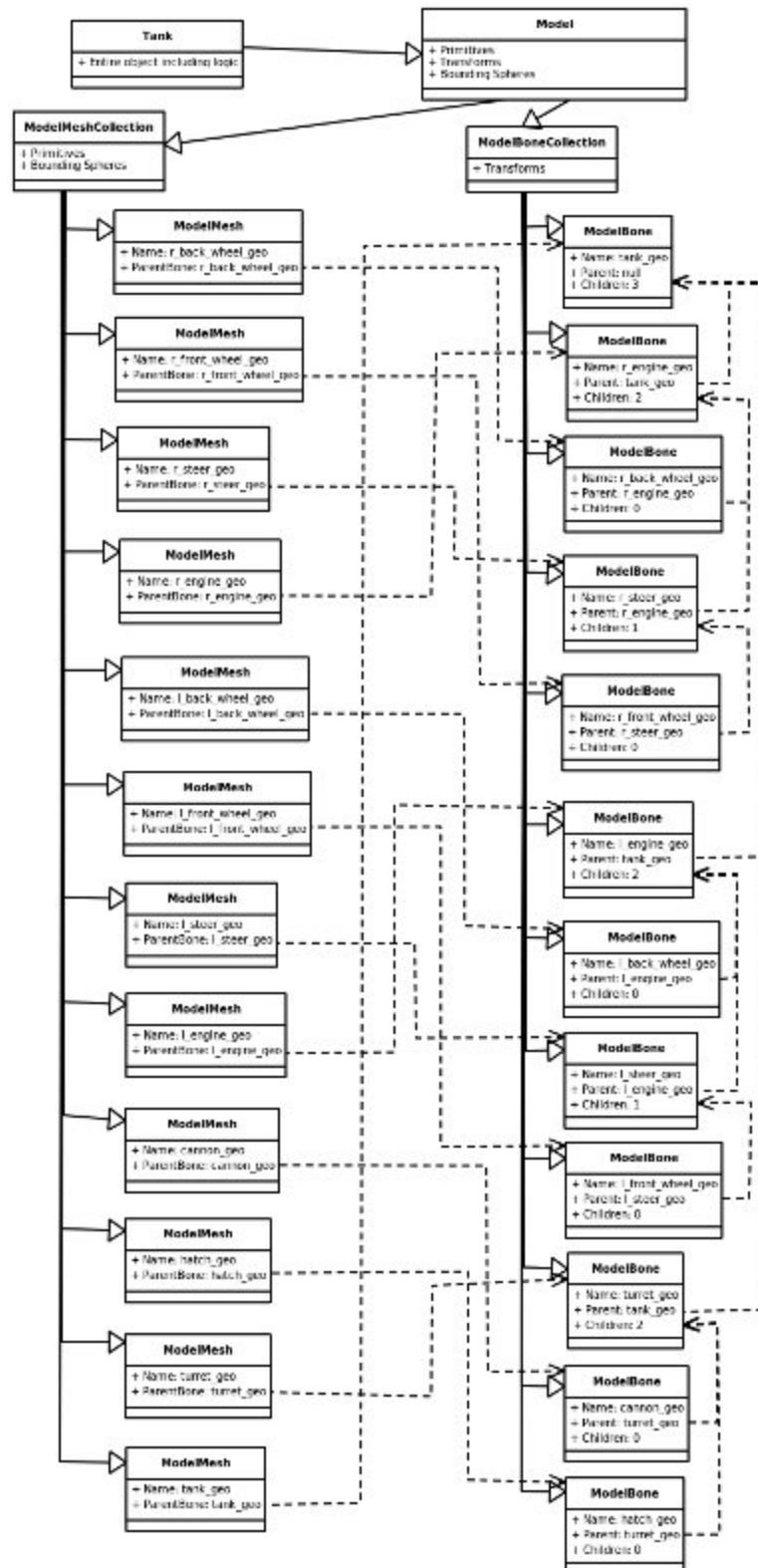
Object Design

The parts listed in the picture are the ModelBones that are used (there a few ModelBones not listed that are not used in this game).

(Original picture from http://create.msdn.com/en-us/education/catalog/sample/simple_animation Ms-PL)



(This graph did not import well, there is a full size PDF included with the submission.)



Evaluation

Known Bugs

- “It’s not a bug, it’s a feature” or lack thereof.
- Turning speed is based on a ratio of the forward speed over the max speed, however controls feel clumsy this way. Need to test full turning speed that is independent of forward speed.

Limitations

- No visual indication of which player won, other than the players Armor status registering a zero.
- No world limits. Tanks can move off of the map view. This could be handled in a future release that includes ground and sky terrain.
- The game doesn’t provide any visual indication that the game is paused.
- The game does not have a save option.
- When a tank is hit by a round, the game does not provide a visual indication of where it was hit.
- The song becomes repetitive. This could have been remedied by adding other songs. However, this was not done in order to reduce the submission size.

Next Version Features

- Show match scores on the screen and provide a visual indication of who won and lost a match.
- Darken the screen and show “Paused” text when the game is paused
- Particle system (for firing, impacts, explosions, etc)
- Glow effect on the ammo - http://www.gamasutra.com/view/feature/2107/realtime_glow.php
- Other models and modified models (e.g. tank reduced to a pile of rubble)
- Skybox and ground - http://create.msdn.com/en-US/education/catalog/sample/generated_geometry
- Moving the tank along the ground - http://create.msdn.com/en-US/education/catalog/sample/collision_3d_heightmap_normals
- Shake the camera during impacts/explosions - http://create.msdn.com/en-US/education/catalog/sample/camera_shake
- Rock the tank during firing/impacts/explosions (use the camera shake tutorial as an example)

- Playing over the network - <http://msdn.microsoft.com/en-us/library/bb975961.aspx>
- Allow customizing the reticle
- And the list goes on and on...

Credits

A big "Thank You!" to the following people/groups for making their content available for use. The following content is not mine:

Audio

- Cannon.mp3 - Public Domain - <http://soundbible.com/909-Cannon.html>
- kickstarter.mp3 - Free of Charge - <http://www.pacdv.com/sounds/>
- Impact.mp3 - Creative Commons Attribution 3.0 - <http://soundbible.com/947-Metal-Bang.html>
- Explosion.mp3 - Creative Commons Attribution 3.0 - <http://soundbible.com/576-Barrel-Exploding.html>
- DryFire.mp3 - Creative Commons Attribution 3.0 - <http://soundbible.com/1405-Dry-Fire-Gun.html>
- TankEngine.mp3 - Creative Commons Attribution 3.0 - <http://soundbible.com/1325-Tank.html>

Models

- Tank (only the model, no source code was used) - Microsoft Public License - http://create.msdn.com/en-us/education/catalog/sample/simple_animation