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| the a-team |
| Bug Tanks |
| Design Document |
|  |
| **They just keep coming and coming…** |
| **12/15/2009** |

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# Game Overview

## Philosophy

**Philosophical point #1**

This game is being created as part of a project being done by a group of students of the Blekinge institute of Technology. As a side project we’ve decided to submit it to the Swedish Game Awards (SGA)[[1]](#footnote-1). We’re creating most of the technology from scratch, while still using a few third party systems for handling, for example, sound and some special graphical effects.

**Philosophical point #2**

Our game only runs on Windows operating systems newer or equal to Windows Vista, since it uses the DirectX 10 SDK, which is only supported by these operating systems. This is because the game is not intended for wide release, and we’re on a very limited time budget.

## Common Questions

**What is the game?**

**The game is a top-down action game, where you and up to 3 other players work together to save a planet, not entirely unlike Earth, from hordes of invading giant bug-like aliens, using your trusty tanks outfitted with an array of different weapon systems.**

**Why create this game?**

**We chose to create this game because we all have very fond memory of top-down games, for example Grand Theft Auto, and wanted to create an action-filled game with lots of enemies and a high tempo.**

**Where does the game take place?**

**The game takes place on the surface of a planet under attack by giant bugs, and in dire need of help. All battles take place in different cities on the planet’s surface, all in different levels of degradation and damaged from the continuous attacks of the bugs. Civilians left on the surface are starting to panic, and some of them have lost control over themselves and can no longer tell friend from foe, and will try to steal your tank.**

**What do I control?**

**The player controls a Tank with modifiable weapons, which you buy from your weapons-guy between missions. If a civilian manages to attack you and hijack your tank, you will be in control of your tanks driver until you can get your tank back.**

**How many characters do I control?**

**You control one character, but play together with at least one other person to create a team of tanks fighting together.**

**What is the main focus?**

**The main focus of the game is to drive all bugs out of your cities, while at the same time completing different side-missions to make extra money for weapons and armor to survive the next city.**

**What’s different?**

# Feature Set

## General Features

Big cities free to explore

Huge bugs

Scared civilians

## Multiplayer Features

Up to 4 players

Easy to find your friends in game

Players work together to counter different bugs

## Editor

The game comes with a level editor

Build your own city

Play your level by clicking a button

Play your level with your friends

## Gameplay

Lots of different weapons

Enemies take different amounts of damage from different weapon types

Huge groups of enemies

Lots of side missions

Two types of tanks

Several different weapons for each tank

Several different types of enemies

Different game types

# The Physical World

## Overview

The physical world is set in different cities around the planet, where the bugs have attacked because of the amount of civilians there. The bugs attack from holes in the ground, that closes up again when they are all killed.

## Key Locations

In certain locations in the city the players will be able to partake in smaller scenarios, where when the player enters the area, a swarm of enemies will spawn, attacking the nearby civilians. In these types of scenarios, the players will need to work fast to ensure that civilian casualties are kept as low as possible.

Objects

## Rendering System

Overview

2D/3D Rendering

## Camera

### Overview

The camera view is almost top down, in about a ¾ view. The camera is fixed on the tank, following the player around, zooming out when the player speeds up to allow the players to see where they’re going. The player will be able to rotate the camera to view his tank from another viewpoint, but will not be able to pan or tilt it.

### Game Engine

## **Overview**

## Game Engine Detail #1

Collision Detection

Lighting Models

Overview

Lighting Model Detail #1

# Game Characters

## Overview

The player’s character is a simple tank driver that just wants to mind his own business, when his home planet is suddenly attacked by giant bugs. The player can choose between being the driver of two different types of tanks, on specialized in close combat, and the other in ranged combat. If your tank gets destroyed, you will gain direct control of your driver, equipped with just his sidearm.

## Enemies and Monsters

The enemies are various kinds of bugs, all with different skills, strengths and weaknesses. The bugs spawn from so called “worm holes” that can appear anywhere on the ground. Each hole has a fixed number of enemies that will emerge from it, and when all of the spawned enemies are dead, the hole will close. When the bugs spawn the first thing they will do is attack the nearest target, which can be either a player character, or a civilian. The score gained from killing a bug depends on the size of it. At the end of every level, there’s a Boss monster that’s bigger and meaner than the rest, which the players will need to kill to finish the level.

## Civilians

The cities are filled with civilians that never had the time to get out when the bugs attacked, and a majority of them have gone crazy from fear and desperation, and will try to attack you. If a civilian gets close to a player when his Tank is parked or moving slowly, there’s a chance that the civilian will try to hijack it. The bugs will try to attack civilians, and the players need to stop this from happening as much as possible, since points will be deducted for every civilian casualty at the end of the level.

## Helpers

The players have a number of helpers that give you equipment and missions.

# User Interface

## Overview

The graphical user interface will provide the player with quick information about health points, money, scores, currently equipped weapons and a small radar showing where your teammates are. The menus will be created by using the existing DirectX GUI API.

## Menus

There will be a few different menus in the game, so that players easily can decide how to play their game, and improve their tanks.

1. Create/Join Game
2. Game Type
3. Host Screen
4. Join Screen
5. Shop
6. Options

# Weapons

## Overview

The player’s main weapon is his tanks, which there are two types of, the long range tank and the close range tank. The long range tank is slow, has a big area of fire and deals massive damage, especially against heavy armored enemies, while the close combat tank is more agile and deals less damage, but is ideal for countering the small bugs. Each of the tank types also have three different weapons to choose from, each a little different and effective against different types of enemies. The weapons each have small upgrades to further effectiveness against special enemies.

## Long-range Weapons

### Cannon

* Base Damage: 50
* Damage Effectiveness: Heavy/Large

Shoots a projectile into a single target, effective against heavily armored foes, because of slower rate of fire its less effective against many smaller foes, can be upgraded with explosive shots, this will make it more effective against swarms and less effective against single large targets.

### Gauss Cannon

* Base Damage: 75
* Damage Effectiveness: Heavy/Large

Shoots projectiles at very high speeds, very effective against larger and more heavily armored foes.

### Beam Cannon

* Base Damage: 40
* Damage Effectiveness: Heavy/Large

Fires a beam of heated energy, it will hit everything in a straight line from the tank to the target, deals double damage versus large enemies and needs to recharge between shots.

## Short-range Weapons

## Minigun

* Base Damage: 10
* Damage Effectiveness Light/Small.

Can be upgraded with armor piercing rounds for slightly higher effectiveness against Medium and Heavy armored foes. Fires massive amounts of bullets in short succession which is effective for dealing with large amounts of smaller enemies but less effective against bigger enemies.

## Flamethrower

* Base Damage: 10/sec in a conal area of effect
* Damage Effectiveness: Light/Small

Sustained damage in a small cone in front of the player, able to deal damage against many enemies at once, effective against many smaller enemies.

## Pulse Cannon

* Base Damage 50 in a large cylindrical area of effect
* Damage Effectiveness Light/Small

Shoots a large pulse of energy in a cylinder in front of the tank, deals massive damage to all enemies in its path, but a lot less effective to large targets. Has a small cool down period.

# Musical Scores and Sound Effects

## Overview

We will be using FMOD EX as our sound engine, since FMOD can handle both sound effects and music. We will record most sounds ourselves, and use free placeholder sounds where needed.

## 3D Sound

For 3D-Sound we will be using FMOD, as mentioned earlier, since it’s easy to use and well liked in the industry.

## Sound Design

The music in the game will be fast paced to give a sense of action, and will play in the background during the entire game, and increase in volume and increase in tempo and volume during hectic times during the fights.

# Multiplayer Game

## Overview

The multiplayer will be the main way to play the game, with between 2 and 4 players working together to rid the level of enemies. If one of the players lose and get game over, the rest will have to carry on without him. It will be possible to chat between players, and also to send private messages between two clients.

## Max Players

The game is designed to be played by at least 2 and at most 4 players, on different computers. There’s no support for so-called “Hot-seat” gaming.

## Servers

When a game is about to start, one player needs to act as a setup-server that the rest of the players connect to, and when the game has started, the network traffic is handled by a peer-to-peer TCP solution. When the game has started, there will be no dedicated server, and if the original creator of the game drops out for any reason, the other players can keep going without any problems.

## Internet

The players will be able to play over the internet if they so choose, in just the same way as if they were playing over a local area network.

## Persistence

Every time a new game is started, the game world will be reset to its default attributes.

## Saving and Loading

There will be no support for saving and loading multiplayer games,

# World Editing

The world will be completely editable, using a modified version of the normal game play client. This allows the player to play the newly edited world by the click of a button, and then switch back to editing mode when needed. In the editor, the player will be able to choose a base map to work from, and can place triggers for enemy spawning and special attack scenarios. The player will be able to save levels for later use, and multiplayer use.

Enemy Appendix

A list of all enemies, their health points and weapons.

# Ants

Ants are the more numerous and less dangerous of the insect invaders and come in 3 variations, all of them small in size

### Kamikaze Ant

* Health Points: 20
* Armor Type: Light
* Armor Size: Small

Will try to get up close to the tanks and explode. If you can kill then while they are close to other enemies, they will explode and hurt or kill them instead.

### Normal Ant

* Health Points: 30
* Armor Type: Light
* Armor Size: Small

The most standard type of enemy you will encounter, they will just try to swarm over you with sheer numbers.

### Fire Ant

* Health Points: 35
* Armor Type: Light
* Armor Size: Small

Will circle your tank and fire goblets of fire.

# Spiders

Generally fewer in number and more dangerous than ants, they are also larger, all of them considered medium in size.

### Tarantula

* Health Points: 50
* Armor Type: Medium
* Armor Size: Medium

Brutish spiders that will typically just charge head on and try to rip open your tank.

## Jumper

* Health Points: 40
* Armor Type: Medium
* Armor Size: Medium

An annoying spider that likes to jump around a lot. Attacks you with a leaping attack.

### Black Widow

* Health Points: 60
* Armor Type: Medium
* Armor Size: Medium

Will stay back and assault you with corrosive venom.

# Beetles

Huge insects with heavy armor and slow brains.

### Scarab

* Health Points: 200
* Armor Type: Heavy
* Armor Size: Large

Big and slow and a heavy hitter, try to stay out of its way.

### Plasma Beetle

* Health Points: 150
* Armor Type: Heavy
* Armor Size: Large

Will spit acidic sludge towards you, but he is slow so stay out of the line of fire.

1. [www.gameawards.se](http://www.gameawards.se) [↑](#footnote-ref-1)