Trick or Treat: Team

Team blog: http://426studios.jot.com/

Team Members:

Dave Horachek*: Lead Game Developer:*

..:Dave's Blog:..

Dave Horachek is currently a Master of Engineering Student at UIC. David graduated with an Honours Bachelor of Science in Neural Computation in 2001 from McMaster University in Hamilton Ontario Canada, with the goal of becoming the next great AI programmer. He has five years of games industry experience and has worked on a variety of sports titles for Midway Games, a coin-op title for Global VR, and a revolutionary glove controller "the P5" for Essential Reality. David reads "the mythical man-month" and "the pragmatic programmer" as bed time stories, and provides the bulk of the technical leadership for the project.

Lindsay Grace*: Project Manager, Web Site, Assistant Game Developer, Art Assets, Level Design*

..:Lindsay's Blog:..

Lindsay Grace is currently a PhD Computer Science student at UIC and a full-time instructor in Interactive Media Design and Game Art and Design at the Illinois Institute of Art. He holds the Masters in Computer Information Systems and the Bachelor of Arts in English from Northwestern University. In the past he's been a software technical lead, web designer, web developer, data integrity analyst, entrepreneur and buyer. Lindsay provided project management and design for this endeavor.

Meghan Connelly*: Assistant Developer*

..:Meghan's Blog:..

Meghan Connelly is currently a Bachelor of Engineering student at UIC. Meghan's area of interest is networking, particularly in the gaming and wireless security fields. She has experience as a network technician for I-DEP, a company that conducts depositions over the internet and is currently employed by the Advocate Healthcare eICU which monitors Intensive Care patients over the internet. There she serves a dual role providing health care assistance and computer support. For this project Meghan will mainly provide the media aspects including sound and art.

Rise of the Dead: Laduca's Revenge

What Makes Rise of the Dead Fun?

Rise of the Dead: Laduca's Revenge is an action-exploration game. It combines the fun of hack-and-slash action games with the challenge of solving a maze. Through intelligent software development, creative artistic decisions and hours of play balancing the 426 team worked to create an environment that is both challenging and engaging. The gameplay is modeled after the classic Game Gauntlet.

The game's primary strengths are: variety, challenge, complexity, and cooperative play.

Gameplay Features

Supports up to **4-player cooperative play**
Choose from **4-player Characters**
Fight more than 100 monsters with **magic or with weapons**
Destroy **5-different monster types, each with distinct Artificial Intelligence**.

Collect new **items to enhance the player**:
- Magic Potions
- Levitation
- Grow/ Shrink
- New weapons

Explore **three distinct game environments:**
- The Dungeon
- The Pits
- The Arena

Technical Gameplay Features:

Joystick Controlled

Player extensible – just update the text files for new levels.

Primary Technical Information:

Technical Requirements
    Processor: Pentium 4 at 2.8ghz
    Hard drive space: At least 280mb

Render Engine: Blitz3D

Technical Features:
    Player input devices supported: 4
    Player/ community upgradeable: Yes
    Stereoscopic Image Supported: Yes
    Stereoscopic Sound Supported: Yes

Extensible Object Pipeline
Making your Own Rise of Dead Level

It is the teams understanding that begin able to "mod" games is a very attractive gameplay option. Rise of the Dead is easily modified. No programming experience is needed to modify this game's experience. A novice computer user a can update the text files that populate each of the games levels. It is also quite reasonable to build a small application to make the modifying levels extremely simple.

Each level is populated through an extensible object pipeline. This object pipeline specifies the appearance and location of all non-player items in the game. With the extensible object pipeline the player can choose to place collectible items, monsters or new items anywhere they choose.

Each level's data set is comprised of four text files. The dungeon level these files are

- **Level.lvl**: Describes the names and locations of each of the following files
- **Doorsandkeys.txt**: Describes the location, effect, and appearance of specific doors and keys.
- **Foodandbuffs.txt**: Describes the location, player enhancement, and appearance of specific monster spawners.
- **Portals.txt:** Describes the location and appearance of specific level entrances and exits.
- **Prototypes.txt:** Describes the specific models used for any non-player element in the game.
- **Spawners.txt:** Describes the location, durability, and appearance of specific monster spawners.

With this system, any item in the world can have any attribute built into the game. Weapons, for example, can be given the same Artificial Intelligence given to enemy NPCs. Upgrade options that the player community could implement include:

- Non-Player Characters can give life instead of take it
- Specific weapons could open doors
- Specific collect items can chase players.

An explanation of the standard file is listed on the next page

The chart of a standard object pipeline file:

```
Line #     Description
    1      The distinct name of the object
    2      The Type of item
    3      Unique Permanent ID for the item
    4      The model's number on prototypes.txt
    5      The level of Artificial Intelligence
    6      Maximum number of children the item may have
    7      The rate at which an item spawns other items
    8      The X coordinate location of the item in world coordinates
    9      The Y coordinate location of the item in world coordinates
   10      The Z coordinate location of the item in world coordinates
   11      The X coordinate scale factor
   12      The Y coordinate scale factor
   13      The Z coordinate scale factor
   14      The X coordinate rotation factor
   15      The Y coordinate rotation factor
   16      The Z coordinate rotation factor
   17      The velocity at which the item travels
   18      The damage, if any, that an item does
   19      The speed in which the item weakens
   20      The relative benefit or detriment of the item
   21      How much health the item is worth
   22      How many keys the item is worth
   23      How many points the items is worth
   24      Type code that describes the behavior of the item
   25      The length of time the item's effects last
   26      Non-Editable
   27      Index into the list of object models
   28      Index into the list of object textures
```

Rise of the Dead: Laduca's Revenge

Art and Design Decisions:

In designing Rise of the Dead, the 426 Studios employed specific game enhancing visual and design elements. These features are meant to enhance the game's fun as follows:

High Contrast Colors:
The design of levels, character models, and objects is meant to make items clearly discernible. The color palette for level meshes is meant to reduce the visual significance of the level's textures. The focus for Rise of the Dead is the character models destroying them.

Tight Camera:
By framing the action of the game tightly, the team hopes to achieve a level of tension that improves the gameplay challenge.

Self-correcting Camera:
The tight camera angle and aerial perspective mean that game elements can be obscured by non-clipped polygons. Simply, at specific angles the levels' walls, doors, and items can prevent the player from seeing other game elements. To alleviate this problem, the game is designed with a self-correcting camera. When there is potential for obscured elements, the game's camera moves incrementally. Once the obstruction is removed, the game's camera returns to the default high-angle view.

This is a benefit to gameplay because it means that players does not have manage camera while playing.

Centered Action
Based on observations in monitoring the eye-movements of Game players the team noticed that players of action games tend to focus on the centered of the screen. This was particularly true in fighting games.

Based on these observations and the biological fact that periphery vision is not detail prone, the team thought it best to keep action centered on the screen. This was particularly important because of the following specific challenges in Rise of the Dead:

- Multiplayer cooperative play requires that all players focus on a specific area. The center seems the most culturally and psychology reasonable of all locations.

- The team's game concept requires that the game's maze be obscured for the appropriate challenge. As such, players must move the camera. By centering the screen, game players are given a neutral control, which should facilitate cooperation.

Low Polygon Collect Items
Low polygon object have been a standard in game development. Besides offering the benefit of faster renders times, there is the fact that in inte4nse action game players do not pay attention the final details of items. Based on the camera distance, scale, and orientation of many of the items there was no need to spend lots of time on high polygon models.

After experimenting with the game, the team reduced many of its spherical polygons to dodecahedrons. At the player's distance, these models look the same as their true sphere equivalents.

These items were also optimized by removing vertexes. The result is a game that can support many simultaneous models in the game world.

Rise of the Dead: Laduca's Revenge

Primary Art Asset List

Art Element:	Artist Name:
Level Meshes	
Dungeon	Grace
The Pits	Grace
Arena	Grace

Player Character Models:	
Dwarf	Laduca
Wizard	Laduca
Elf	Laduca
Amazon	Free download

Non-Player Character Models:	
Specter	Free download
Mummy	Free download
Mutant	Free download
Hound	Free download
Zombie	Free download
Boss Level 2	Free download

Object Models	
Default Player Weapons	
Axe	Grace
Arrow	Grace
Collect Items (food)	
Turkey Leg	Grace
Poison Turkey Leg	Grace
Grapes	Grace
Collect Items (points)	
Coins	Grace
Coins (2)	Grace
Gems (red and blue)	Grace
Tunic	
Collect Items (other)	
Key	Grace
Collect Items (Player Enhancements)	
Mace	Grace

Knife	Free Download
Katana	Grace

Spawn Points

Headstone	Free Download
Player Start	Horachek
Exit	Horachek

Project Management and Tools Overview

Rise of the Dead benefited significantly from the use of software project management tools. These tools helped support the team's core management goals:

- Separation of Responsibilities
- Clear and Consistent Communication

The specific tools the team used were:

Version Control Software (VCS)

The team used Tortoise open source CVS client to manage software. Save for a few technical difficulties, the Tortoise client was highly effective in helping to manage the CVS repository of blitz code and game art. All game assets and some documentation were managed through the CVS client.

Wiki
Jotspot.com was used to manage the team's personal blogs. This tool was useful in sharing ideas initially. As development progress the blog became less effective than simple e-mail exchanges. The primary weakness of blog-based communication was its lack of urgency. Blog-based communication required the communicator to post questions, and the other team members needed to consistently check the wiki board. This is an inefficient means of communication when the team members are actively engaged in full-time jobs.

Fun Facts:

The following are some fun facts about the project and the team

- **5000**: The approximate number of lines of code created for the final version of this game.

- **1023**: The number of e-mail messages Dave and Lindsay exchanged during the development of the game (**519 average**)

- **100**: The approximate number of textures Lindsay edited for the game's levels (12 used)

- **72**: The total number Mountain Dew 12 ounce cans Dave consumed while writing the code.

- **6**: The time Dave typically went to bed because he was working on game (that's AM).

- **4**: The number of website redesigns Lindsay implemented for the team's site.

- **3**: The number of video games Meghan has played to date (not including her favorite, Intelligent Cube).

- **2**: The number of time we asked Dr. Leigh to review what we had – Thanks!