Theme Park Builder 3D

GAME PROPOSAL

Version # 1

Wednesday, October 25, 2006

Game Concept

Introduction

Theme Park Builder 3D is a multiplatform open source theme park simulator. The game allows the player to choose among several game play styles suitable for all ages as they build and experience a detailed and very extensive park. The player will construct a fun environment from the many pieces available. The player will also be able to experience the park by using camera options to move around in the park like a guest; this includes riding on the coasters and other attractions. This game will provide many options for the player to adjust how they play the game. Utilities will be provided to allow the user to create their own scenery items based on 3D models. The game will allow the construction of large parks comparable to real world parks. The fun of this game is derived from both the construction experience and the simulation experience. The sharing of custom created items will supplement the fun experience as well.

Background

There have been several theme park simulation games in the past. Despite the popularity of these games, they have suffered from certain drawbacks. Typically, the game-play has been designed to force the user to play a certain way. While this is appropriate for most games, it only interfere with the real fun of a world building game – which is simply the fun of building! Another drawback has been the fixed number of construction elements. A large part of the fun of building comes from knowing that you are making something unique. The more items that are available, the more fun the player can have. The ability to create truly custom items greatly enhances the fun. Existing games have not permitted this; fortunately, fan created utilities have allowed some custom content for some games. Despite the limited capabilities of these utilities, tens of thousands of custom items have been created and shared via internet fan sites. Another drawback of existing theme park games is the issue of speed. In order for a game to represent even a small park, it must draw a *very* large number of 3D objects. Existing games and planned commercial games are incapable of rendering a large park without unacceptably slow display times. A special game engine technique is required to rapidly render simulated parks comparable to real parks.

Description

Imagine looking over a simple landscape with a gentle river and groves of trees. You've got money to buy land and … coasters! You design the parking lots, the paths the facilities and lots of rides. Build a better theme park and the world will beat a path to your ticket booth. Advertise your glorious new park and watch the crowds grow. Keep expanding your park in all directions, including up and down! When you need a break from all this work – join the crowd and go for a ride on your own coasters. Wander through the park and take in a show or try your luck at the midway games.

Market Analysis

Target Market

Theme Park Builder 3D (TPB3D) is a construction game combining elements of strategy and simulation. It id most similar to the RollerCoaster Tycoon (RCT) series of games. The original RollerCoaster tycoon (RCT1) was produced independently by Chris Sawyer and was a smash hit. It was followed by two popular expansions. A sequel was eventually produced (RCT2) which was very similar to the RCT1. The two key new features of RCT2 were an extension to the construction system to allow "stacked" scenery and the ability of the game to accept plug-in modules containing new scenery and ride objects. Interestingly, the stacked scenery technique had been pioneered by a fan created utility (the Beast Trainer) for RCT1. A minor addition to RCT2 was a track mirror function which was also pioneered by a fan created utility for RCT1. RCT2 did not provide any means for the player to create their own plug-ins; but again, a fan created utility made this possible.

After two official expansions (which received mixed reviews due to inconsistency of the artwork), and a fan created unofficial expansion, another sequel (RCT3) was produced. RCT3 used some internal data structures derived from Chris Sawyer's work but the game was completely new and written for a 3D engine. Once again, a fan created utility has allowed players to create custom plug-ins despite the developer not providing such a feature. Two expansions were released. Regrettably, legal issues arose between Chris Sawyer and the publisher Atari. Until and unless those issues are resolved, there will be no more direct descendants of this series.

TPB3D offers similar game play to the RCT series of games. It is targeted at both the casual player and the dedicated enthusiast who wants to get the maximum fun and versatility from a world building game. Fans will be called upon to create the game as well as the artwork. This will ensure that the game is well received among the fans of this genre. Theme Park Builder 3D will be released for the PC Windows, PC Linux and Macintosh OS X platforms. While the dominant game market is the PC Windows platform, fans within the other platforms will undoubtably contribute to the game as well.

Top Performers

The games most similar to Theme Park Builder 3D are:
RollerCoaster Tycoon 3 released in November 2004 for the PC by Atari. Developed by Frontier. It has since been released for the Macintosh by Aspyr. Sales figures are unknown and are the subject of a lawsuit.
Thrillville to be released in November 2006 for the console market. Developed by Frontier. A PC version is likely.
There are other notable games in the general genre of construction games, but these two games are so close to the market for TPB3D that it is not worthwhile to consider other games.

Feature Comparison

Play Styles: RCT3 allows for either scenario based or sand-box play styles. Thrillville is scenario based. Thrillville also incorporates older games in a "midway" setting. TPB3D will allow the player to choose any style of play. In addition, players can share their games and rides over the internet; they can even work cooperatively on a park hosted on a server.

Construction Tools: RCT3 and Thrillville feature a tile based construction technique which is simple enough for young children yet flexible enough to allow interesting coasters, rides and paths to be built. TPB3D will provide a similar simple construction method but will extend it with more options for more experienced users. More advanced users can use an advanced free-form construction system. Importing of games, rides, scenery, etc will be a core feature of TPB3D.

Terrain: RCT3 has some elaborate terrain editing tools but lacks the ease of use of earlier RCT games. This is particularly evident with regard to underground construction. Thrilleville's terrain editing capabilities are unknown at this time. TPB3D will feature easy to use terrain tools which make it fun to build underground rather than tedious. Tunnels and even decorated caverns can be built.

Setting: The RCT series has offered some variety of climate and topography. TPB3D will take this one step further and allow for changing gravity to simulate parks on other worlds. This is not expected to be a major feature but it does provide a little more variety.

Large parks: RCT3 allows for farily large park areas to be used. Unfortunately, the game slows tremendously as the number of objects is increased. This effectively limits the game to small parks. A major feature of TPB3D is that it allows for very large parks to be built and filled with a large number of objects. This is probably the most important feature of TPB3D.

Artificial Intelligence: Guest and employee AI is a mixed blessing with RCT3. There are some obvious problems which interfere with game play. TPB3D will provide a more friendly style of AI.

Custom Content Editors: RCT3 and Thrillville do not allow the player to create new objects for use in the game. This will be a key feature of TPB3D. Scenery (both static and animated) can be created. Likewise, paths, vehicles and tracks can be custom created. Even park guests can be custom created. (Although why anyone would want a park full of say… giant Meerkats is beyond me.)

3D experience: RCT3 and Thrillville provide a 3D view for construction and provide a vehicle based camera for the "ride the rides" experience. Thrillville will provide a guest based camera which allows for a better immersion experience than RCT3. TPB3D will allow all of these perspectives. The player can also choose an "isometric" type camera angle which was allowed in RCT3. TPB3D will allow more angle increments to be selected in the isometric views.

Special Events: RCT3 introduced firework displays to the theme park genre. This was a smashing success and has prompted cries for more special events within the game. TPB3D will expand on the special event concept by providing music concerts and other events.

Technical Analysis

Experimental feature

Reductive 3D Engine: This graphic technique extends the idea of mip-maps to 3D objects. Individual static or semi-static 3D objects (which are themselves composed of multiple polygons) are grouped by physical proximity. The group is represented as a larger simpler object. This complexity reduction takes place at several levels. The reduction level object presented to the graphic render engine will depend on the distance of the group from the camera and the overall complexity of the scene. This allows extremely large numbers of game objects to be rendered with an adequate frame rate.

Major development tasks

Render Engine: A standard 3D polygon render system based on OpenGL.
Tools/Editors: Scenery, texture, ride, landscape, path and guest editors.
User Interface: Menus, keymapping, camera control and mouse controls.
Triggers/Events: Vehicle/actor behavior.
Objects: Basic objects for the game.
Physics: Coaster and ride movement controls.
Sound: Sound effects and music.
Resource Management: Audio and graphic files and archives as well as import/export of objects.
AI: Guest and employee path finding, interaction and behavior.
Reductive 3D Engine
Optimization
Network Communication: Object transactions and multiplayer parks.

Risks

All tasks should be considered risky as this is a first-time development group project. Some items can be reduced in scope if absolutely required. None of these compromises should be required. This list is provided only for reference sake.

- The editors could be left in a less refined state wherein the user interface is “rough”.
- The resource management system could left in a simple state or largely omitted.
- The AI could be kept rather simple.
- The Reductive Engine could even be omitted altogether (although it is considered a key feature). Optimization can also be limited.
- The network system could be omitted altogether.

The time required for completion of this project will depend on the level of community support and the expertise of the participants. In the best case scenario, it will take two years to complete.

Legal Analysis

The software will be released under a not-for-profit license which prohibits the sale of the game. The source code will be available with the restriction that it and derivative works must remain not-for-profit. Any derivative works must make the source code available with the same conditions. The license will allow for modest handling fees for distribution of hard copies.

The artwork, including 3D models and objects will be released under a not-for-profit license. Publicly released artwork should be freely available and will be subject to inclusion in "official" compilation offerings (which will be not-for-profit.)

Financial Projections

Resource Cost

Volunteer programmers and artists will develop the game. The individual developers will bear all expenses which they may incur. The project may use some commercial royalty free resources such as sound libraries. These expenses will be borne by the project leader.

Additional Cost

There will be a cost associated with maintenance of a web site and domain names for the game. The web site is $84 per year and the domain names are $28 per year.

Suggested Retail Price

This game will be distributed for free as an electronic download. Bandwidth restrictions may limit availability at times. For those who cannot obtain the game via download or who simply wish to receive a disc version, a disc will be provided for a modest fee to cover production costs; shipping will be the responsibility of the requestor. If this were a commercial game, it would likely be offered in the price range of $30 to $40.

As time goes by and more artwork becomes publicly available, a compilation collection may be offered as a download. This too would be made available in disc form for a nominal fee for those who request it in this form.

Revenue Projection

There will be no revenue from this project other than a slight fee for recorded discs and shipping materials. This revenue will match the associated expense so no net profit will occur.