

Remastering Day of the Tentacle and Grim Fandango

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history and process of remastering the classic adventure games Day of the Tentacle and Grim Fandango

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1. Remastering Old Games

Remastering of old games can provide the opportunity to bring old games to a new generation of players and hardware so they can be made accessible again. Enhances the visual appearance by using modern methods of lighting shaders or texturing and can enable the game to be developed in other platforms. However recreate an old popular game is very challenging in reaching the same level that made those games very popular in the past both in developing and also artistically.

Alterations of the newer version can contain better lighting or an improved resolution and texturing. Due to the diversity of the control system that new platforms and operating systems can provide, the transitions from the old to the newer versions of the game can also contain input change controls. Moreover remastering gives the opportunity to the developers to fix older bugs or to add some extra gallery features resulting into a more better gameplay experience and give a feeling of nostalgia to gamers already familiar with the older version of the game.

In order to stay close to the old, remastering techniques have been developed. These techniques mostly depend on which game engine the older games are built upon. However the first common step of remastering is to collect all the game data files of the old games by exploiting the game engines architecture. The collection of the old game data files are based on methods that enables the developer to retrieve those files and transform them into files accessible from other modern software in order to manipulate them.

2.1 The Philosophy of the Remaster.

Developers should stay close to the original style but using the modern hardware and capabilities to create a beautiful and modern version of an older. In order to achieve that they must follow the Remastering Philosophy which summarizes the most important points when remastering.

Those are worth mentioning are

- 1) True to the artistic intent,
- 2) Improve fidelity where possible
- 3) Modernize delicately
- 4) Fix bugs
- 5) Add Extras

2.2 Remastering Day Of The Tentacle.

Day of the Tentacle can be an example of methods for remastering a game that used a very popular by that time game engine SCUMM.

SCUMM is somewhere between a game engine and a programming language, allowing designers to create locations, items and dialogue sequences without writing code in the language in which the game source code ends up. Moreover it was developed to convert readable commands into tokens interpreted by an executable program that presented the game to the player. Tokens can be identified by their names and not numbers make it easier for the developers to create an hierarchical structure of game data files. In other words the SCUMM program was responsible for tokenizing the scripts and gathering all assets including art images and sound, as a package. The reusable interpreter is called SPUTM that would interpret the scripts, load assets from disc, and handle the other user interactions with the game.

Every single function in SPUTNUM may have a C implementation which made it very portable and gave the remastering developers access to the source code and compile it with modern compilers. Following the Philosophy of staying true to artistic intent, developers in order to retrieve the original data, used the method of running the game in Sandbox having the remastered version framework wrapped around that. Implementing that method every frame on the SCUMM is reinterpreted using the remastered content including animations, images, background, sound files and so on.

Context retrieval methods have given directly access to the assets of the game. This is done by using source code to extract out all the images associated with backgrounds, sprite images sound files etc. Then according to the point of Remastering Philosophy as far as improved fidelity is concerned developers can extract the up-scaled images into modern software files. This gives the opportunity for the artists to improve pixel resolution or any other improvement were is needed. An example of the benefits of context retrieval method can be spotted in Animation. Instead of recreating the 8000 different sprites of the original game, context retrieval can enable the artists to work with Flash files for each animation instances.

2.3 Remastering Grim Fantago.

Grim Fantago original game used a different game engine, the GrimE engine. In particular Grim Fantago is a real time 3d game so developers had to come up with different techniques in order to recreate the game but also to stay true to the Remastering Philosophy.

The GrimE engine supported pre rendered backgrounds at 640x480 with 16 bit color and real time 3d characters composited on top. The engine core was written in C which included typical engine

management methods such as memory management resource, animations and so on. In order to interpret the code programmers use the LUA programming language.

Context retrieving in remastering use the same method as before. Take the GrimE engine with full source for both C code and LUA code and having them compiled on modern compilers. The most significant difference with the methods mentioned before is that developers instead trying to sandbox the original engine a lot of modifications had to be made directly in order to make the game more compatible to modern renderers and interfaces. That includes stubbing out things like calls to old windows technologies and fixing compiler issues. In contrast to the STUMM engine techniques, to support fixed bugs and add new features developers had to modify the GrimEd directly including the LUA code.

2.4 Remastering the Game Engine

As mentioned before one of key components in creating a successful remaster game is to improve fidelity and stay close to the original artistic intent. Using a primitive 3d game engine can be a drawback for today's visual demands. Some problems included are low bit resolution textures, many edges are aliased and rectangle shadows can give a non realistic look of the scene. A remaster renderer can add features to improve the rendering quality.

Old rendering techniques had primitive lighting so that object or characters seemed they didn't fit on the scene. By creating a remastered version of the game engine many modern real time rendering methods can be implemented. Differed shading on the remaster version scenes can look better by giving the ability to the artists to provide more lighting to the scene or shadows maps can improve the shadowing quality. Moreover textures can be improved by collecting the images and recreate them in high resolution by artists.

2.5 Remastering the Lighting Pipeline.

Computing lighting based on older games seemed to be very challenging because developers have no sources or references to create a real time lighting rid. The data required for the lighting equations can be collected by the extracted data and particular the 640x680 color maps at 16 bit color for the pre rendered backgrounds combined with the 640x480 bit Z bitmaps which were the pre calculated depth buffers. The idea is to take every single bit pixel of the Z-bitmap create a quad in Maya and then map one pixel of the color map onto that. That is sufficient material to enable the developers to place lights.

3. References

[1] GDC talk : <https://www.youtube.com/watch?v=HqWrdIf69M8>, Remastering Day of The Tentacle and Grim Fantago

[2] Wikipedia : <https://en.wikipedia.org/wiki/SCUMM>, SCUMM

[3] Wikipedia : <https://en.wikipedia.org/wiki/Lua>, LUA