Procedural Modelling of Cities implemented as a Blender Plug-In

Supervisors: Kevin Glass and Shaun Bangay

15/05/2007

1 Previous Short Term Objectives

1.1 Scene Improvement

A goal for this week was to improve the modeling techniques used in the generation of the road network. This task was set for two specific reasons, firstly a better rendering of the scene would allow for easier review of the differences and improvements of the various road generation techniques used, and secondly by performing simple scene improvements on a weekly basis it is my intention to reduce the amount of clean up work required in the latter stages of the project.

1.2 Region Extraction

The second goal for this week was to work on some form of region extraction whereby certain regions, specifically those between various existing roads could be selected in order to allow for the implementation of smaller side roads and eventually buildings.

2 Progress

2.1 Scene Improvement

Due to a continued lack of understanding of the Blender's Python API the amount of improvement to the scene was fairly minimal. An attempt was made to accurately apply a texture image to each of the road objects. The results of this was the successful association of the texture to a relevant material and the correct association of that single material to each of the road segments. The texture however was not successfully applied to the road segments as the image was mapped along incorrect co-ordinates, thus the roads whilst still reflecting the asphalt texture were not reflecting the associated road markings. Further improvements that were attempted include the correct reflection of a complex intersection model and the combination of various types of road network as a part of the same piece of landscape.

2.2 Region Extraction

Due to the various adjustments made to the road generation system and the same lack of understanding of the Python API no substantial progress was made in terms of region extraction from the road network. At this point the process of road segment creation and that of intersection creation remain separate and whilst this should be a fairly simple problem to correct, it is required for accurate region extraction. Thus as reflected as a part of one of next weeks objectives, the process of road creation and subsequent intersection creation needs to be streamlined and more effectively implemented.

3 Problems

A problem encountered this week is the possible bad layout and organization of my python code, this problem needs to be rectified by a meeting and possibly some form of source code review with the project supervisor. The aims of this code review will be to hopefully gain a better understanding of the Python API as this lack of understanding appears to be the largest obstacle to progress in this project. Specifically the object orientated approach to the system design must be analyzed and reviewed in order to determine if the logic applied to the layout of the system is in fact the best possible approach.

4 Objectives for Next Week

4.1 Overall System Continuity

The major objective of this week will be to review and update all of the python scripts associated with this project, this will include the implementation of any recommendations from the code review and the completion of all of the various aspects of the system which the code currently attempts to implement. The results of this will hopefully be an easier platform from which to move forward in the coming weeks.

4.2 Region Extraction

One of the objectives for next week is to focus on methods for region extraction, specifically the system needs to be able to extract regions between highways to be used for creating side streets and in the long run it will also need to be able to extract further regions to create buildings and city blocks on. Thus some method of extracting region information must be derived.

4.3 Scene Improvement

The current render of the scene are very basic and crude, some attention must be paid this week towards replacing road segments and intersections with appropriate objects which are properly modeled and rendered.