Project Proposal

Medieval Building Generator
## Table of Content

1. About Tales of Teana .......................................................... 3
2. Project Vision and Objectives ............................................. 3
3. Project Owner ...................................................................... 4
4. Project Scope ...................................................................... 4
5. Architectural requirements .................................................... 4
6. Skills Requirements .............................................................. 5
7. Project Deliverables .............................................................. 5
8. Client commitments ............................................................. 5
9. Supporting Document ........................................................... 5
1. About Tales of Teana

*Tales of Teana* is a **NERO based boffer Larp** in Gauteng. People dress up as a character and pretend to be that character for the weekend or single day events hosted by Teana. Think World of Warcraft in real life, but instead of clicking to fight someone, you have to actually fight someone with foam swords. Between events you can spend your gold rewards on an estate system, which allows you to buy property for your character. On [this page](#) you can find more info on Teana and an introduction video on larping if you are interested.

2. Project Vision and Objectives

Teana has an estate system with various medieval buildings. These include farms, mines, houses, forts, shipyards etc. Pictures for these buildings are usually isometric images that are combined in Photoshop. The problem with this is that it takes a lot of time to create a single building image. If images from the web are used, they do not always represent the correct buildings, or has a slightly different angle. Also, if we decide to change from isometric to top-down, or maybe even 3D images, these building images will have to be recreated. Figure 1 shows an example of some the buildings pictures we use.

![Example of Building Images used in the Estate System](#)

Figure 1 - Example of Building Images used in the Estate System

You can see the inconsistent artwork, sizes and perspectives of some of the buildings in the pictures above.

For this project you will create a 3D building generator. This generator will use basic geometry, textures and optional extra 3D models to procedurally generate medieval looking buildings. These buildings must be saved into a 3D format. You should also be able to render the images with an orthogonal camera to create top down or isometric PNGs for the buildings. Figure 2 shows examples of the output that is rendered with orthogonal projection.

![Examples of Orthogonal Projection](#)

Figure 2 - Examples of Orthogonal Projection
Depending on the success of the project, it may eventually be used to procedurally generate medieval cities for the world of Teana.

3. Project Owner

Project Owner: Tales of Teana

Contact Person: Mark-Anthony Fouche

Contact Email: mark@teana.co.za

Website: http://www.teana.co.za/

4. Project Scope

This project will be a desktop application.

Features of the application include:

- Generating buildings from basic shapes, textures and optional 3D objects.
- Settings that modifies parameters for the building generation process. Examples:
  - Theme:
    - Roof type
    - Door type
    - Window type
    - Textures, etc.
  - Number of stories and building size.
  - Type of building (Mine, Housing, Farm, Castle, etc)
- Importing and exporting 3D objects.
- Exporting buildings as PNGs with the use of orthogonal projection.
  - This feature will also allow you to potentially import any 3D model and create a PNG for it.

5. Architectural requirements

The 3D objects you import and export should be compatible with the free version of SketchUp. The .3ds file format looks like the file type of choice.

Since UP’s graphics course teaches WebGL, it may be a good choice to use Node.js (Javascript) for this project. Examples of desktop frameworks you can use with Node.js are NW.js and Atom-Shell.

For the GUI you can use something like Famo.us or Bootstrap.

For WebGL it is recommended you use a library. Something like Three.JS.

For testing, take a look at Mocha.
If you are looking for a JavaScript IDE, take a look at JetBrains WebStorm. You can get the full version of the IDE if you use your Tuks email address to register for a student license.

6. Skills Requirements
You will require some 3D programming knowledge.

You will need to do some research on how to procedurally generate buildings.

7. Project Deliverables
Source code.

We prefer documentation to be in the form of wikis. Here is an example: https://github.com/mbostock/d3/wiki

8. Client commitments
We can communicate via Email and Google Hangouts.

Any required meetings (physical or virtual) will have to occur after 5 PM on a weekday.

9. Supporting Document
Information about the world of Teana can be found in our Campaign Guide.

Information about our current estate system can be found in our Estate System Document.