Electricity Tower Generator.

Software Requirement Specification

Centre for Computational Technologies

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https://www.cctech.co.in

Centre for Computational Technologies - CCTech
403, Pushpak Business Hub, Wakad
Pune, 411057, India

1 Introduction

1.1 Purpose

This tool is intended to serve users to generate electricity towers on mouse clicks, ensuring a straight line connection between towers, used by Urban Planners for city planning.

2 Overall Description

2.1 Intended Audience

The intended audience for the Electric Tower Generation includes companies and developers specializing in 3D graphics, Computer Aided Design (CAD), Governmental Environmental Agencies and mainly used for City planning and used by Urban Planners.

3 Functional Requirements

3.1 Terrain Rendering

- The system shall read and render terrain mesh data from STL files.
- Terrain rendering should provide a clear visualization of the landscape.

3.2 Electricity Tower Generation

- Users can generate electricity towers on mouse clicks.
- The towers shall be placed on the terrain surface.
- All towers except the first one should maintain the same height to ensure straight wires.

3.3 Tower Height Adjustment

- The system shall dynamically adjust the height of the towers based on the terrain data at the mouse-clicked location.

3.4 Wire Rendering

- Implement wire rendering between towers to represent the straight connections.

4 Non Functional Requirements

4.1 Performance

- The tool must efficiently handle large terrain files.

4.2 Usability

- The GUI should be designed for intuitive user interaction for Urban Planners.

5 Technical Requirements

5.1 Programming Language

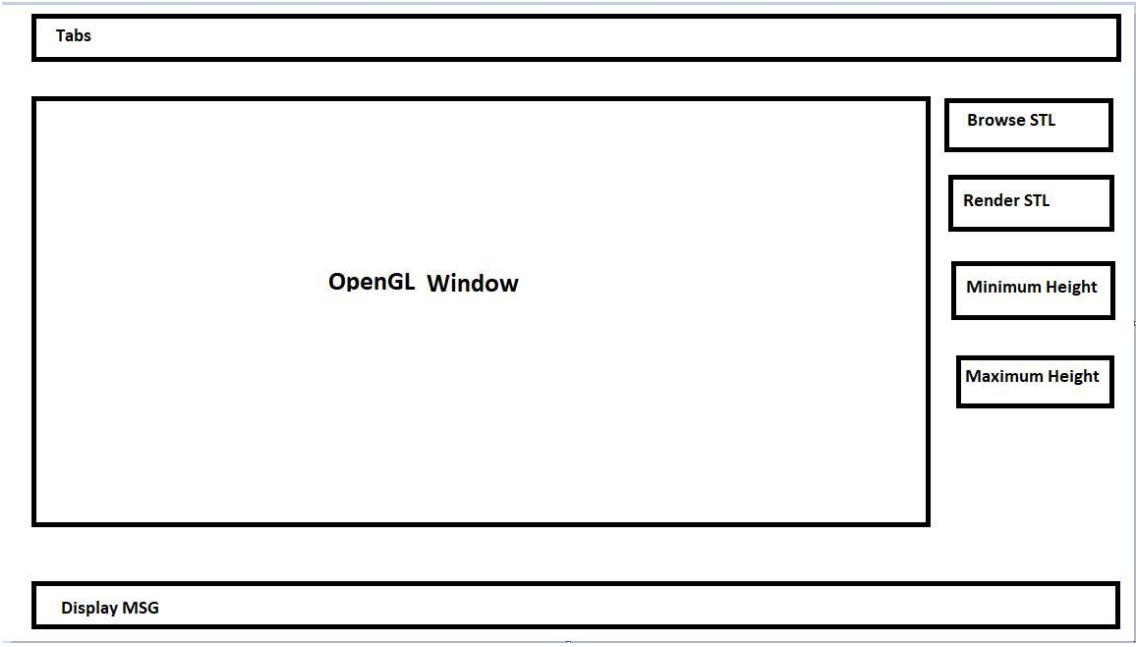
- C++

5.2 Libraries and Frameworks

- Utilize OpenGL for 3D graphics rendering.
- Use the Qt framework for GUI components and window management.

5.3 GUI Design

- UI is developed Using Qt framework



6 Milestones

Index	Milestones	Description	TimeLine
1	SRS Approval	SRS approval by Client	04/01/2024 7.00pm
2	GUI using qt framework	GUI includes OpenGL window for rendering, button for browse stl file and zoom and zoom out feature	05/01/2024 1.00pm
3	Terrain Rendering in OpenGL	visualize Terrain in openGL window	05/01/2024 7.00pm
4	Tower generation and visualize it on OpenGL	Tower generation on mouse click	06/01/2024 1.00pm

5	Wire connection between the Towers (Final product)	Algorithm development to connect the wire between the tower	07/01/2024 1.00pm
6	Testing	Testing of Final product	07/01/2024 7.00pm
7	PPT presentation	ppt of final product which contains info about Feature	08/01/2024 12.00pm.

7 Conclusion

The Electric Tower Generator - Electric Tower Generator aims to Develop a visualizer application to Implement a feature allowing users to generate electricity towers on mouse clicks on Terrain surface, ensuring a straight line connection between towers.