CAD Modeller using WEB-GL

Centre for Computational Technologies

Transforming human life by democratization of technology

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1 Introduction:

1.1 Purpose

The purpose of this document is to provide a comprehensive overview of the requirements for the development of a web-based CAD modeler application.

1.2 Scope

This application will allow users to create, edit, and manipulate models in a web browser using WebGL technology. The front-end will be developed using React, while the back-end will be powered by Node.js.

2 System Overview:

The system will consist of the following main components:

- Web-App using react as frontend.
- Node.js for backend.
- Web-GL for rendering graphics .
- Rest API for API functionalities.

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3 Functional Requirements:

- Tools for creating 2D Primitives.
- Support for basic shapes .
- Editing of models.

4 Tools:

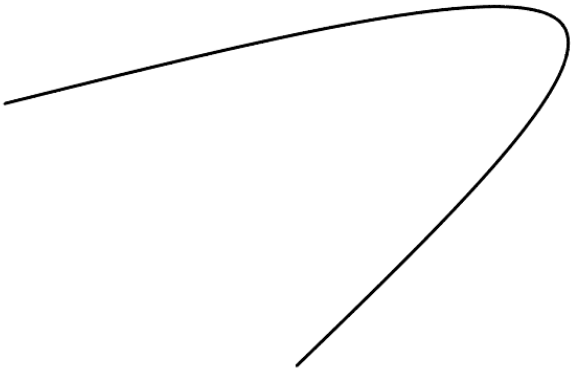
4.1 Front-end

- React for the front-end interface.
- WebGL for 3D rendering.

4.2 Back-end

- Node.js for the back-end infrastructure.
- Secure communication protocols for data transfer.

5 UI :



Shapes Button : This Button will help you to draw the desired shape.

Save : This Button will save the drawing on the screen.

Clear : This Button will clear the canvas .

6 Milestones and Timeline:

Sr. No.	Milestones	Date and Time
1.	SRS preparation	7th May - 1 pm
2.	SRS Presentation	7th May - 2 pm
3.	SRS approval	7th May - 3 pm
4.	Frontend Development	8th May - 5pm
5.	Backend Development	9th May - 7pm
6.	Real-time rendering integration	10th May - 7 pm
7.	Testing & Debugging	11th & 12th May
8.	Finalization & Presentation	13th May - 5 pm

7 Conclusion:

In conclusion, the web-based CAD modeler will successfully achieve its objectives of democratizing design, providing real-time visualization through WebGL, and offering a user-friendly interface with React. By harnessing the capabilities of modern web technologies such as WebGL, React, and Node.js, this project aims to create a user-friendly platform that empowers designers, engineers, educators, and collaborative teams to create, edit, and collaborate on models directly within a web browser.

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