MICHIGAN STATE UNIVERSITY

Alpha Presentation

Generative Multi-Modal CAD AI Assistant

The Capstone Experience

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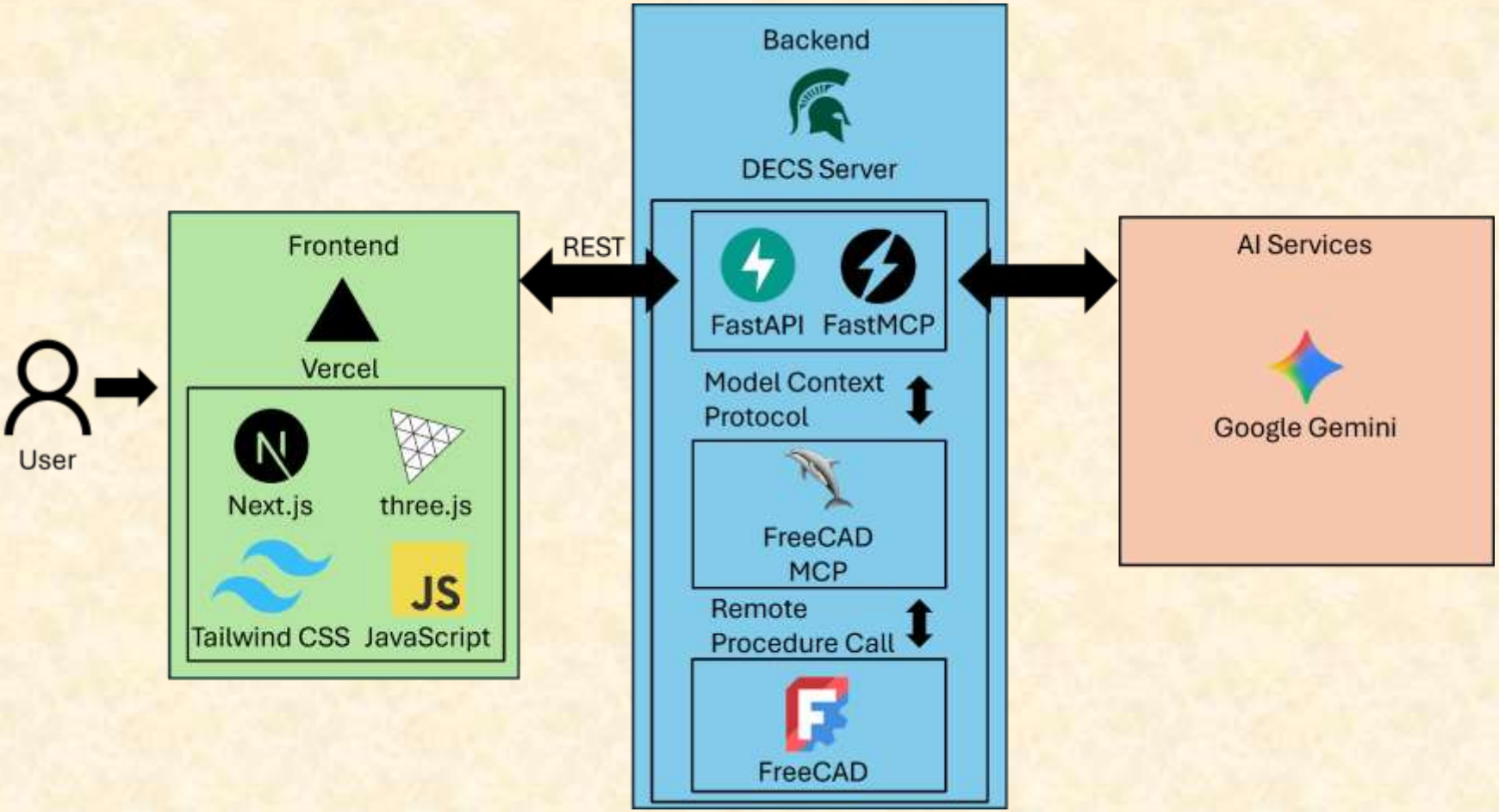
Spring 2026

From Students…
…to Professionals

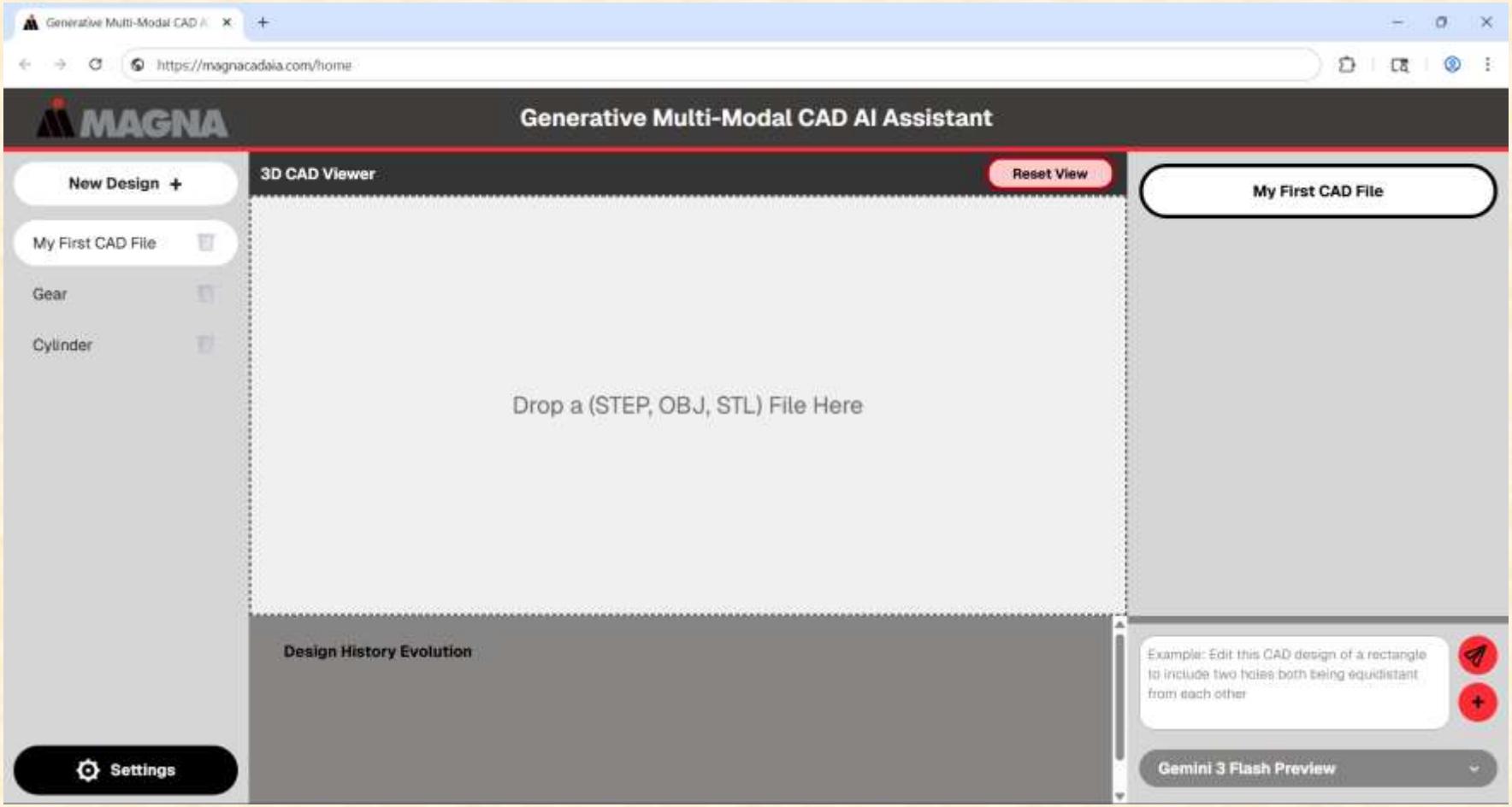
Project Overview

- This project effectively assists in the time-consuming task that is developing Computer-Aided Design (CAD)
- CAD Designers can use this to generate and edit CAD files through the power of a Multi-modal Large Language Model (LLM) enabling a more efficient process for CAD

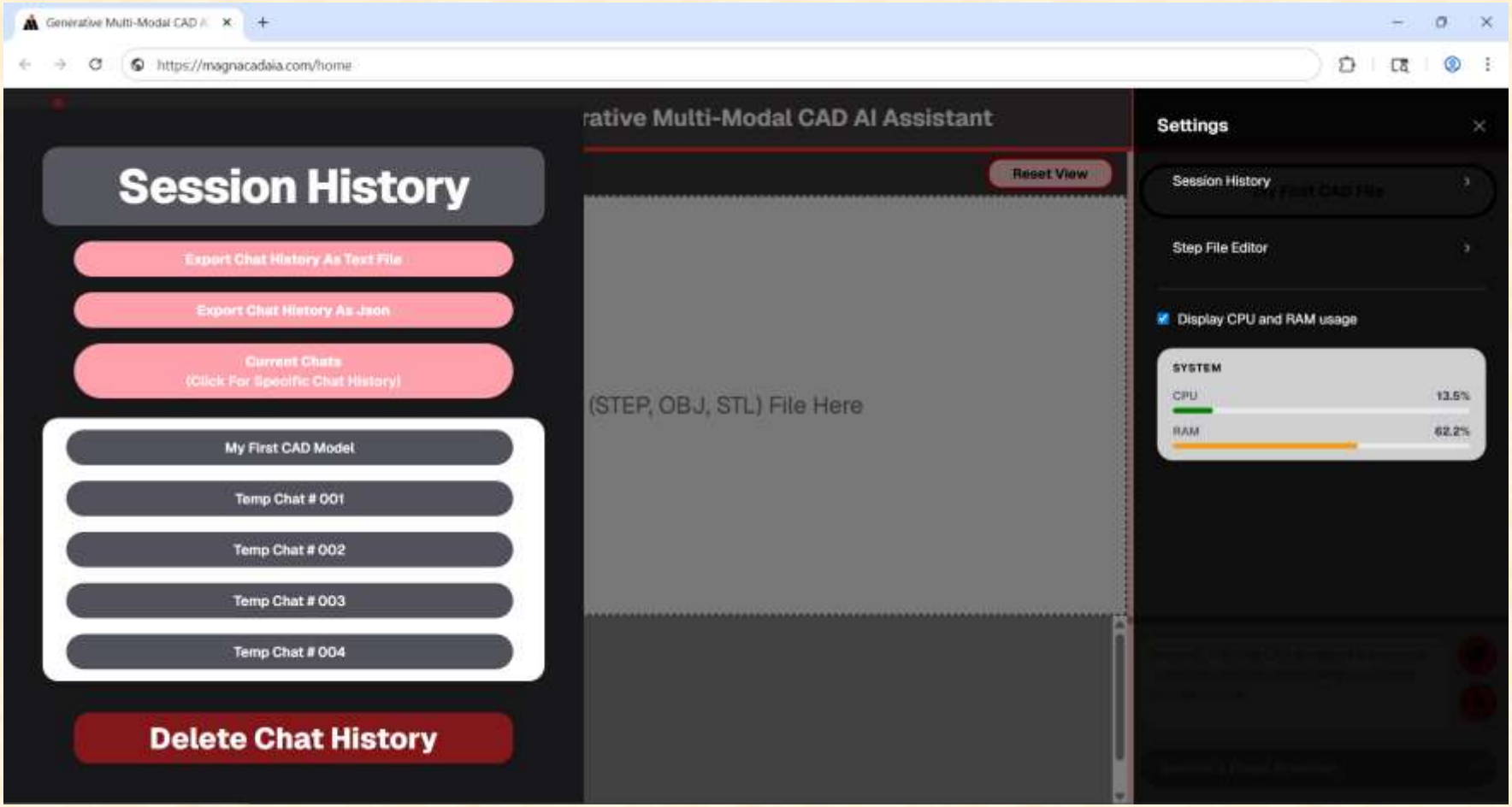
System Architecture



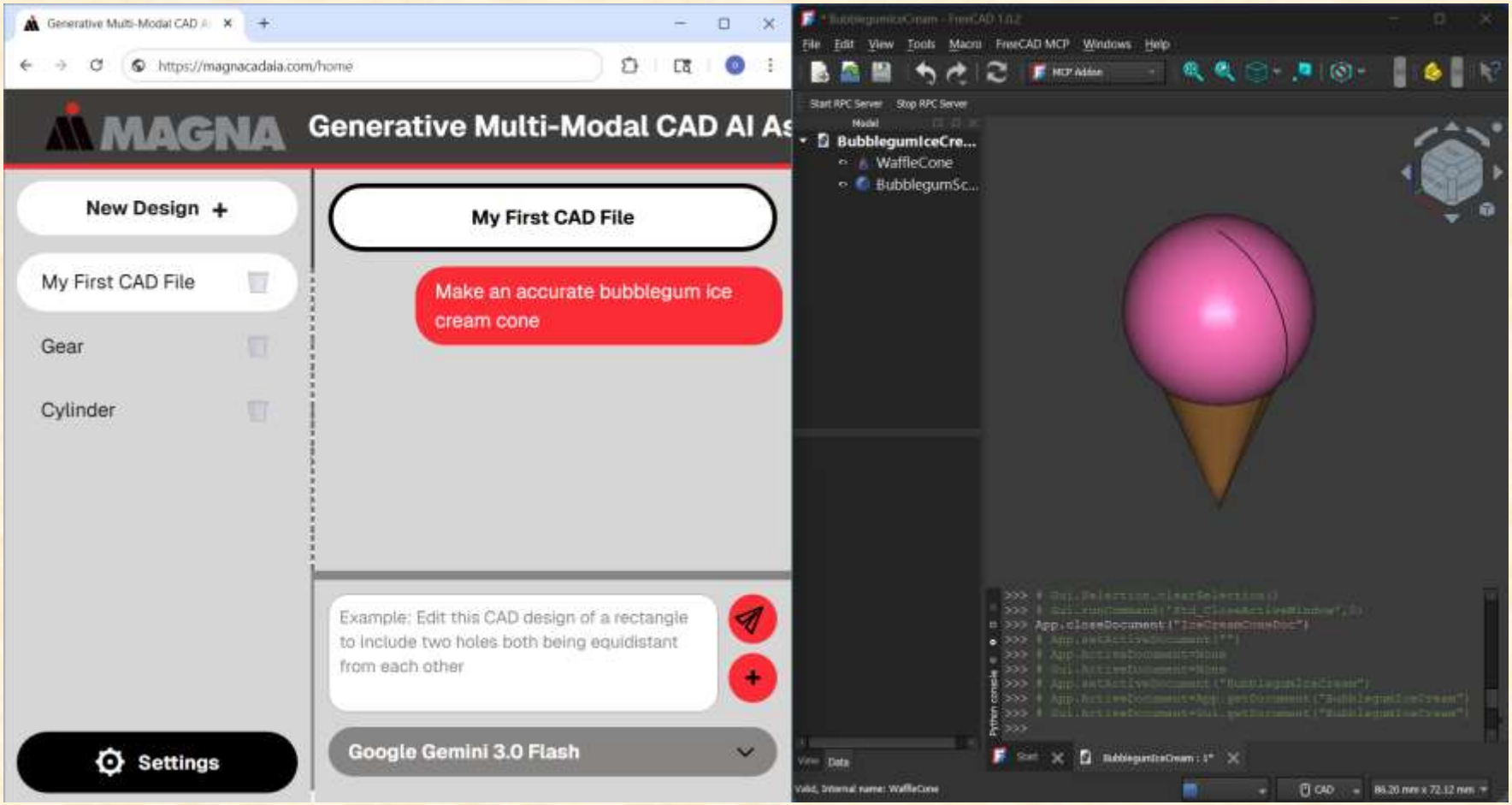
Landing Page



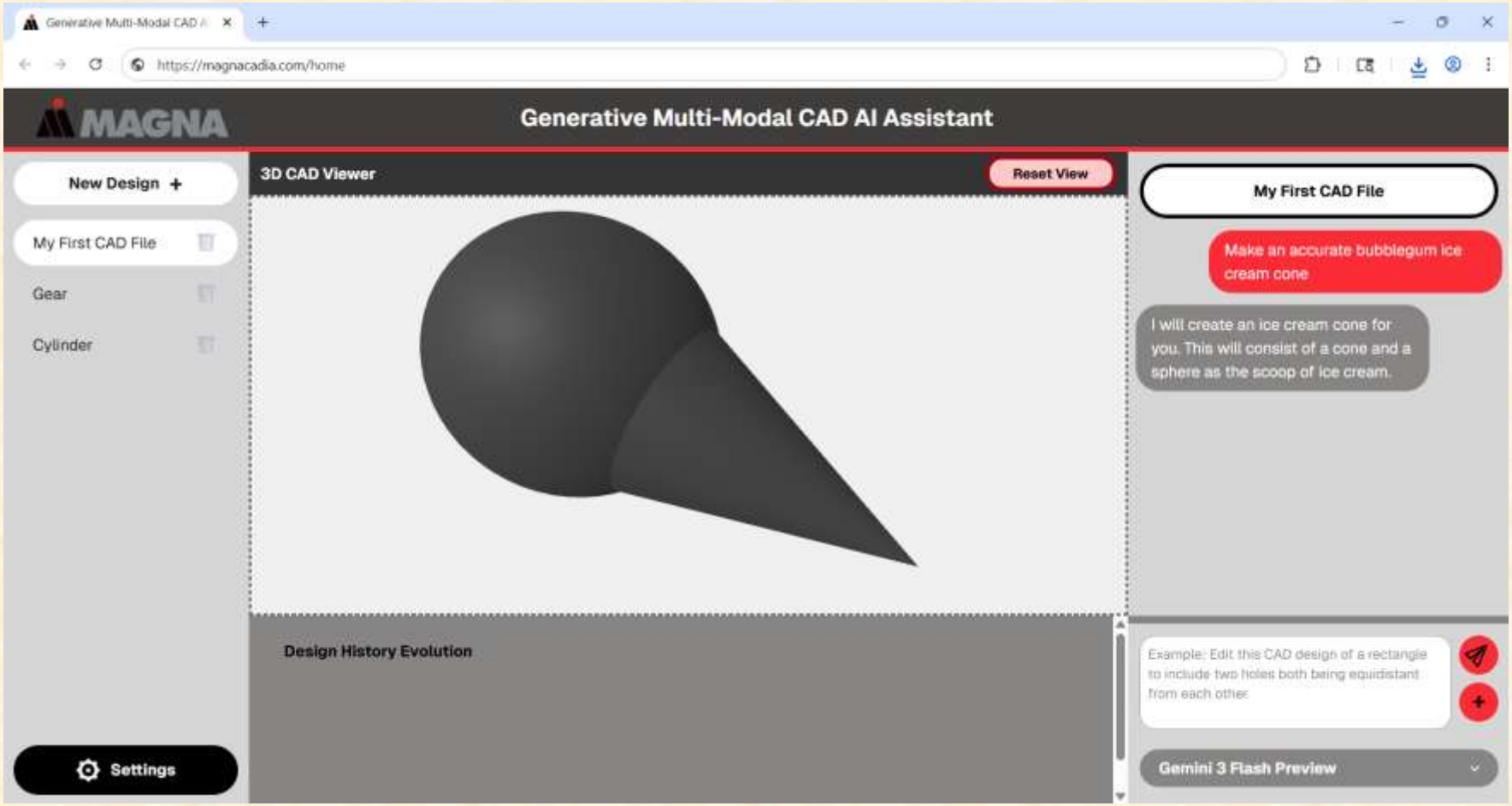
Settings Panel



MCP FreeCAD Generation



Active User Workflow



What's left to do?

- Expose backend server to external connections
- Send 2D projections from FreeCAD to API for iterative validation
- Enable sketches to be interpreted via multi-modal LLM and output an accurate model
- Connect FreeCAD MCP to 3D viewer, and connect design history to 3D viewer
- Match design history tracking to API output

Questions?

