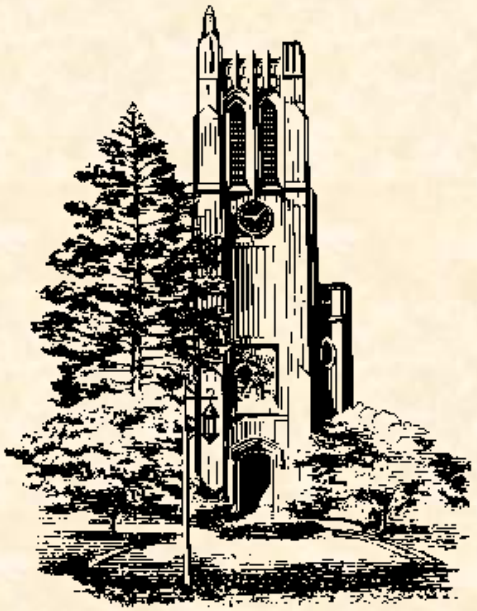
MICHIGAN STATE UNIVERSITY

Project Plan
3D Applet and Translator



Team 1: Altair

CSE 498, Collaborative Design

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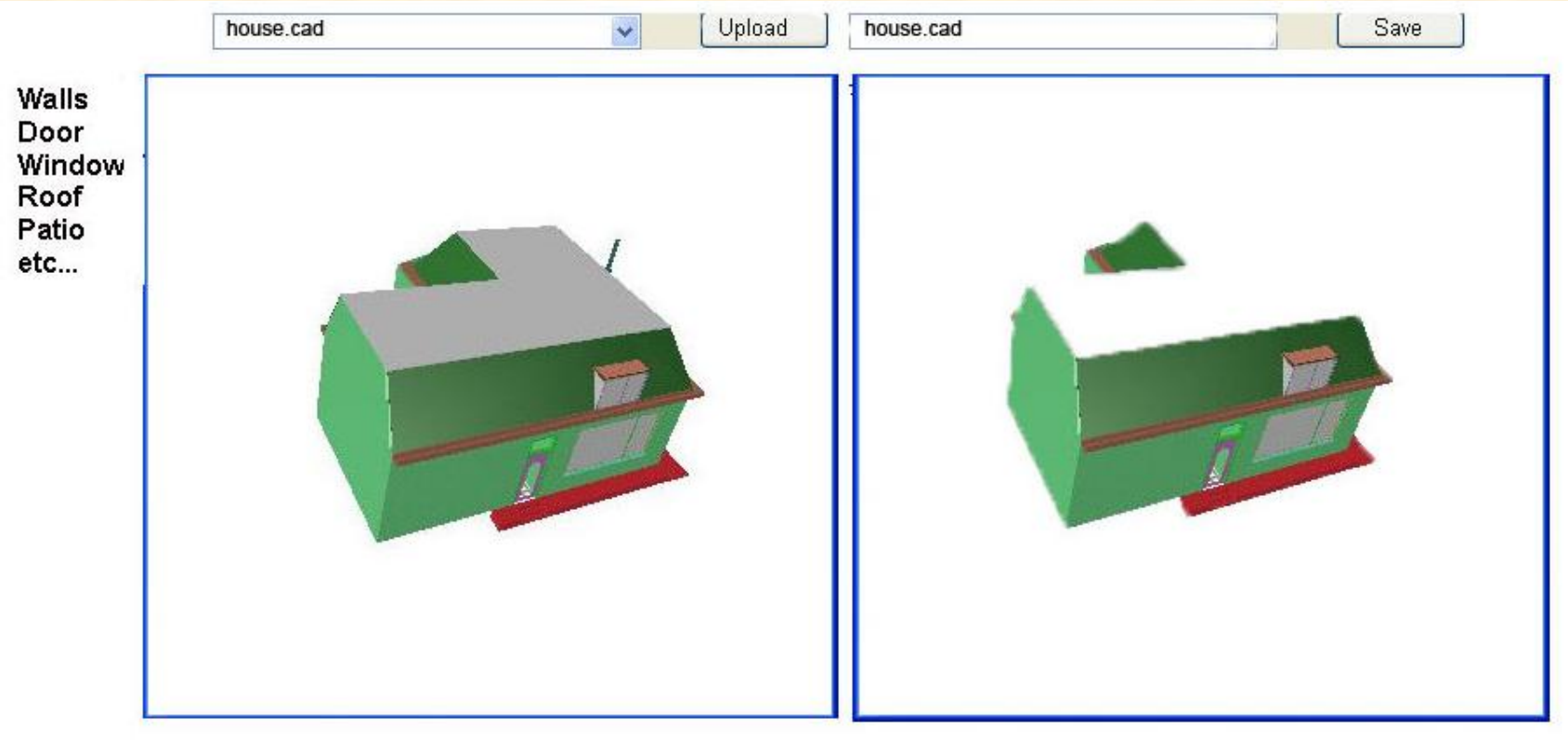
Functional Specifications

- Upload CAD file
- Convert to X3D format
- Render X3D file in web page (applet)
  - Select sub-components of 3D file
  - Export a parts list for any sub-component in XML
  - XML File will contain only the files that are selected by the user

Design Specifications

- Translator
  - Allow uploading CAD file through browser
  - Translate into X3D file
  - Output is XML-based X3D file
    - Initially a standalone program
    - Work towards creating a web service so any application can call it and convert a CAD document into an X3D file
- Applet
  - Display
    - Hierarchy of components
    - Global Rendering Screen
    - Subcomponent screen of selected components
  - Output X3D file of subcomponents

Screen Mockups



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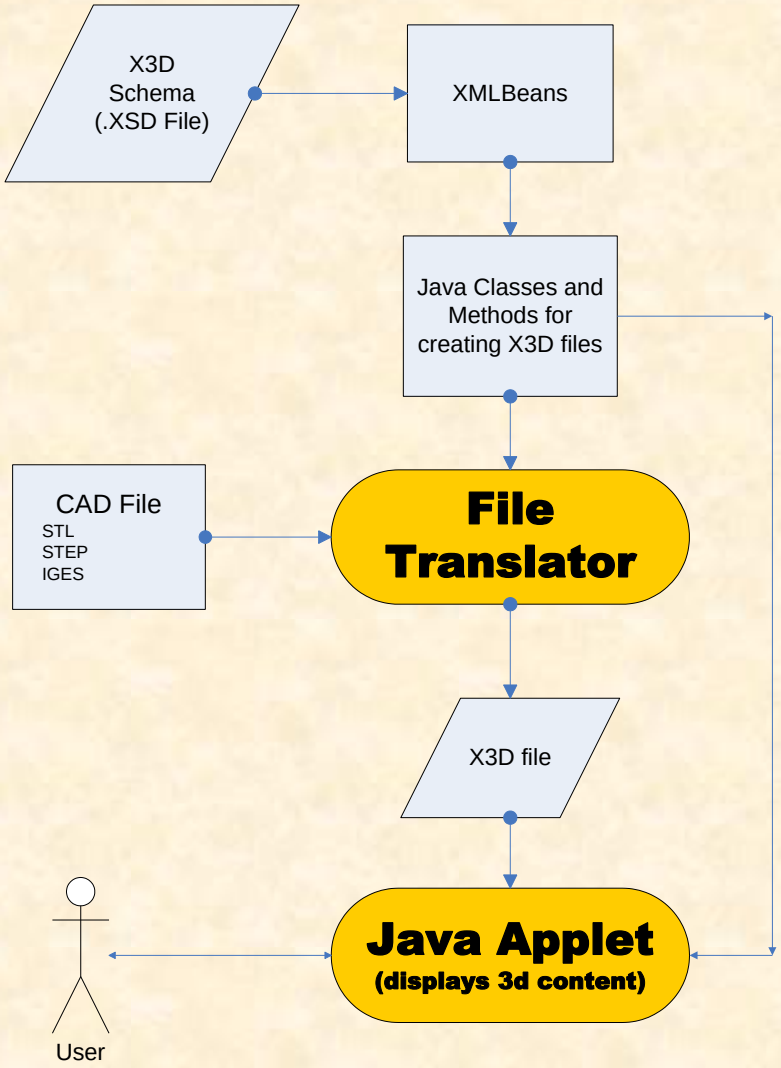
Technical Specifications

- Translation
  - Generate class files for X3D object
  - Parse input CAD file into classes
  - Generate X3D from classes
- Visualization
  - OpenGL vs. Java3D
  - Render geometry from X3D classes
- Output
  - Parts list of selected sub-components (XML file)

Architecture Illustrated



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System Components

- Hardware Platforms
  - Windows XP machines
  - Windows 2003 server
- Software Platforms / Technologies
  - Java in Eclipse IDE
  - OpenGL library (JOGL) for Rendering OR Java3D
  - XMLBeans library for handling XML file input

Risks

- Creating Application in Eclipse / Java
- Parse Multiple File Formats
  - Huge complexity within X3D classes
- Using JOGL or Java3D efficiently
  - Rendering sub-components of single X3D file
- Convert File Translator to Web Service