CoLab Software - Complete Product Requirements Document

Executive Summary

CoLab is an EngineeringOS platform that combines virtual design review capabilities with AI-powered engineering assistance. The platform enables engineering teams to accelerate product development by capturing expert knowledge during design reviews and using AI agents to surface relevant insights in real-time.

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1. DESIGN REVIEW CAPABILITIES

1.1 Secure Data Sharing

Requirement ID: DR-001
Priority: Critical
Description: Secure methods to share CAD files and design data

Functional Requirements:

- Share files from desktop
- Share files directly from PLM/PDM systems
- Generate unique, secure sharing links
- Open CAD in lightweight browser-based viewer
- Support restricted and unrestricted workspaces
- Configure data transfer rules between PLM and CoLab
- Rules based on file attributes and custom values
- Different rules for restricted vs unrestricted workspaces
- Support portal access for external users (suppliers, customers)
- Maintain critical data associations from PLM

Acceptance Criteria:

- Files can be shared securely via multiple methods
- Links provide appropriate access control
- No CAD software installation required for viewers
- PLM associations are preserved

1.2 File Support & Visualization

Requirement ID: DR-002
Priority: Critical
Description: Support for multiple CAD formats and visualization capabilities

Functional Requirements:

- Support 30+ file types
- Native CAD support: SolidWorks, CATIA, Creo, NX, SolidEdge
- Neutral format support: STEP, PDF
- Instant file conversion to browser-viewable format
- Stable CAD viewer in web browser
- 2D drawing visualization
- 3D model visualization
- No software installation required for viewing
- Multi-CAD and multi-PLM support

Acceptance Criteria:

- All listed file formats can be uploaded and viewed
- Conversion completes within acceptable time
- Viewer displays models accurately
- Performance is acceptable for typical model sizes

1.3 Feedback & Markups

Requirement ID: DR-004
Priority: Critical
Description: Tools to create and manage design feedback with visual markups

Functional Requirements:

- Pin feedback directly to models and drawings
- Support for markup tools: arrows, text boxes, GD&T symbols
- Feature control frames
- Rich text comments
- Attach images to comments
- @mention functionality for team notifications
- Auto-save drafts while creating feedback
- Auto-save drafts while editing feedback

- Support feedback on cutting planes
- Pin comments to specific geometric features

Acceptance Criteria:

- Feedback can be placed precisely on geometry
- Markup tools render correctly
- Comments persist with visual context
- Draft auto-save prevents data loss

1.4 Review & Feedback Tracking

Requirement ID: DR-006
Priority: Critical
Description: System to track, organize, and resolve design feedback

Functional Requirements:

- Automatic issue tracking from design reviews
- Feedback automatically saved with full design context
- Structured database for all feedback
- Search and filter capabilities
- Status tracking (open, in progress, resolved, closed)
- Issue assignment to team members
- Priority levels
- Due dates
- Group feedback by file in split view
- Prevent accidental review closure

- Prevent accidental file deletion

Acceptance Criteria:

- All feedback is automatically tracked
- Search returns relevant results
- Status updates sync across system
- Assignments notify appropriate users

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2. USER EXPERIENCE

2.1 Usability Requirements

Requirement ID: UX-001
Priority: Critical

Functional Requirements:

- No CAD software installation required for reviewers
- Intuitive interface requiring minimal training
- Browser-based access
- Mobile-friendly interface
- Consistent experience across devices
- Accessibility compliance
- Prevent accidental destructive actions (delete, close review)
