

Prowiz-An Enterprise IntelliAgent ERP

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Section 1

Introduction

Inspiration and Motivation

- The software is motivated for the need to automate the complex workflow in process engineering
- The software should be robust, reliable, flexible to dynamic workflows and observable
- The software architecture is inspired by how to make this software work as an **ERP assistant** for the user rather than an intrusive and cumbersome UI
- The software should incorporate the evolving generative AI landscape, modern software design principles and automation practices.
- The software should be able to be used in a variety of environments, from local installations to cloud-based solutions.

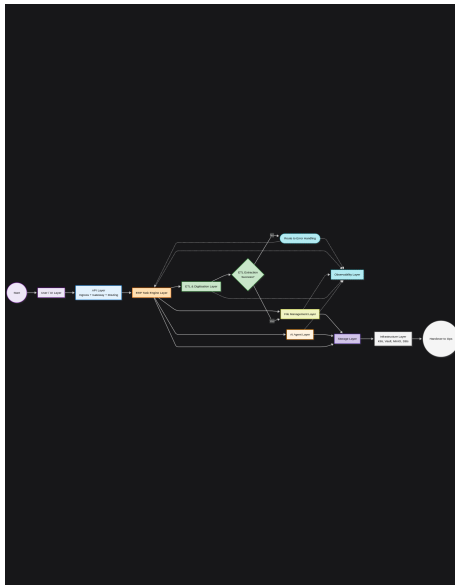
Software Functionality

- Project Environment Management
- Project Management and Task Tracking
- Engineering software Integration Layer
- Document Generation
- Document Tracking and Versioning
- Document Compliance and Review
- Diagram GPT
- Enquiry Processing Assistant
- Business Analytics

Section 2

Layer Abstraction

Core Layers



Layer Functionalities - Part 1

- **UI Layer:** Provides the user interface for document upload, agent triggering, task management, version review, change history, and analytics dashboards. Interfaces with API layer for all interactions. This layer contains an integration of chat assistant for user interaction.
- **API Layer:** Acts as the central access point via ingress and API gateway. Handles routing, authentication, rate limiting, versioned API groups (auth, agent, document, ETL, ERP, summary, compliance).
- **ERP Task Engine Layer:** Manages projects, tasks, workflows, approvals, assignments. Acts as the orchestrator connecting ETL, AI, and document systems with user workflows and audit logs.
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- **AI Agent Layer:** Executes intelligent agents for document generation, compliance review, email understanding, P&ID parsing, semantic diffing, enquiry processing, and task summaries.
- **ETL & Digitisation Layer:** Ingests and watches file systems and document uploads. Computes checksums, extracts metadata, invokes

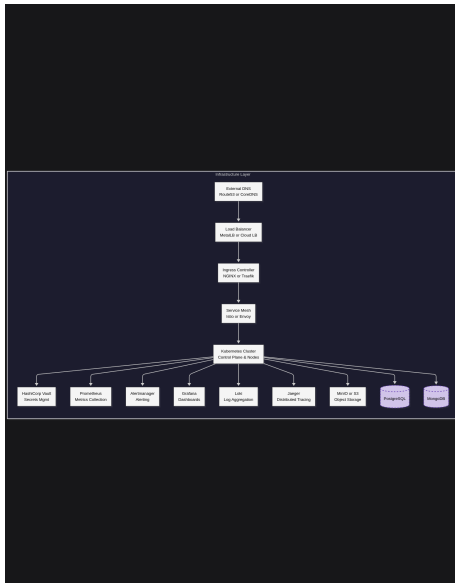
Layer Functionalities

- **Document System Layer:** Manages file uploads, versioning, semantic diffing, review flows, and links documents to tasks. Interfaces with storage and audit layers.
- **AI Agent Layer:** Executes intelligent agents for document generation, compliance review, email understanding, P&ID parsing, semantic diffing, enquiry processing, and task summaries.
- **ETL & Digitisation Layer:** Ingests and watches file systems and document uploads. Computes checksums, extracts metadata, invokes AI-based content extraction, and stores structured outputs.
- **Document System Layer:** Manages file uploads, versioning, semantic diffing, review flows, and links documents to tasks. Interfaces with storage and audit layers.
- **Storage Layer:** Handles object storage (MinIO/S3), metadata (MongoDB/Postgres), embeddings (vector DB), audit trails (TimescaleDB), and raw file lifecycle APIs.

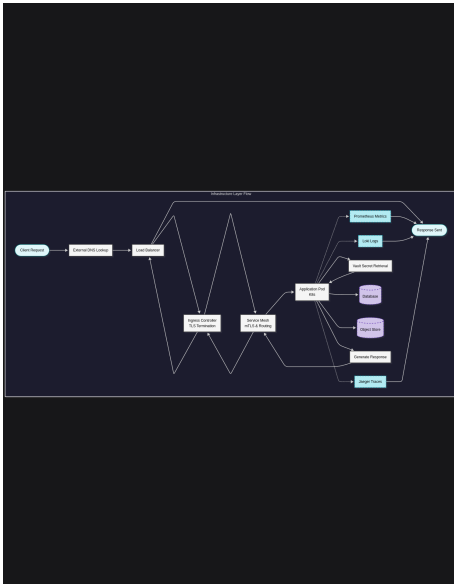
Section 3

Infrastructure Layer

Infrastructure Layer



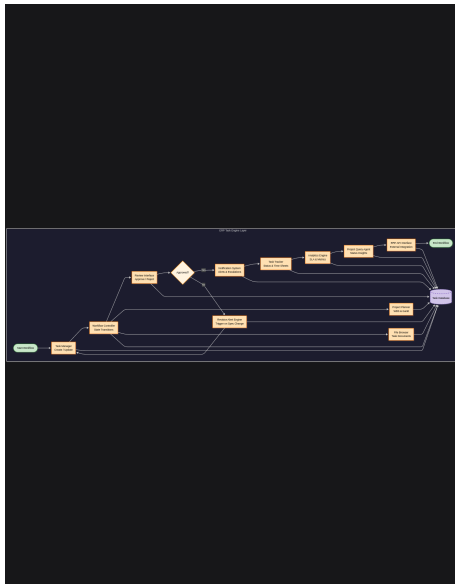
Flow



Section 4

ERP Task Engine Layer

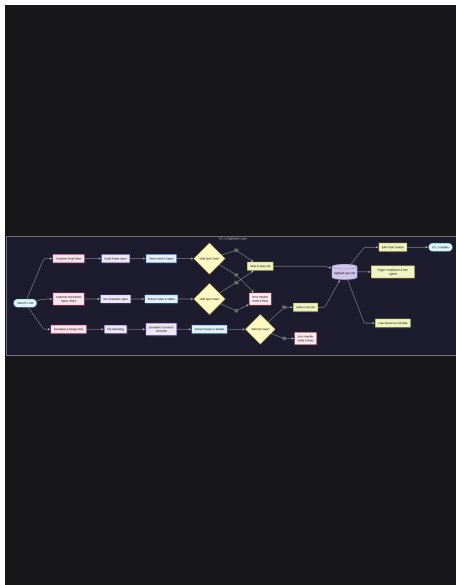
Components



Section 5

ETL and Digitisation Layer

Data Sources

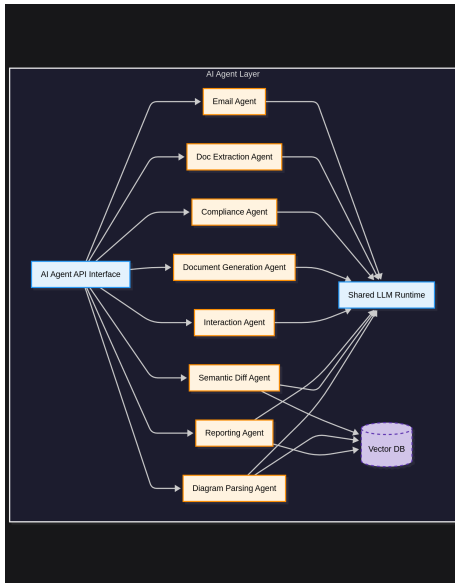


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Section 6

AI Agent Layer

Components



AI Agent Layer - Functional Responsibilities (Part 1)

- **Email Agent:** Parse instructions, project context, and intent from incoming emails.
- **Doc Extraction Agent:** Extract data from tables, forms, and scanned docs using OCR or layout models.
- **Document Generation Agent:** Generate structured documents like BoQ or datasheets from extracted data.
- **Compliance Agent:** Validate content against standards, checklists, and tender specs.
- **Diagram GPT:** Parse and understand flow diagrams like P and ID or layout maps.
- **ERP Action Agent:** Convert natural language into ERP commands or task state changes.

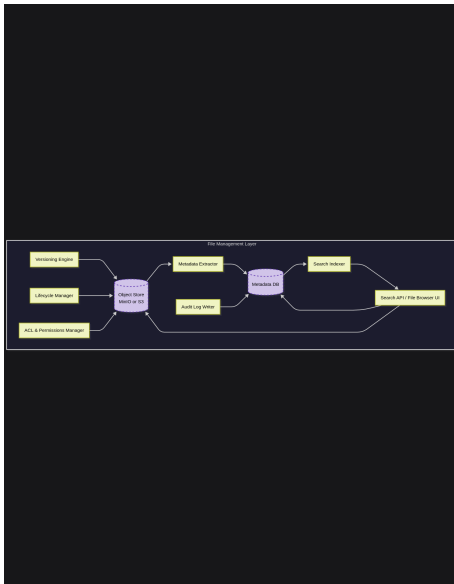
AI Agent Layer - Functional Responsibilities (Part 2)

- **Project Query Agent:** Answer task-related queries across agents and document context.
- **Enquiry Agent:** Parse RFQs to extract delivery dates, quantities, vendor details.
- **AI Review Summary Agent:** Generate summaries for human reviewers with context awareness.
- **Semantic Diff Agent:** Highlight structural and content changes between document versions.
- **Iteration Summary Agent:** Track changes over task lifecycle and report rejections, updates.
- **Change Justification Agent:** Prompt reviewer to explain rejection or suggest revision reason.

Section 7

File Management Layer

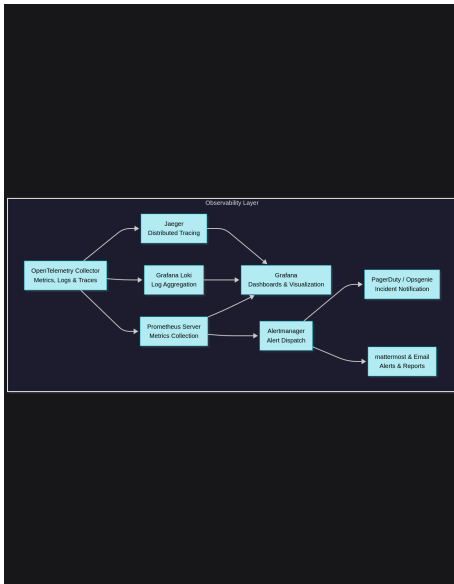
Components



Section 8

Observability Layer

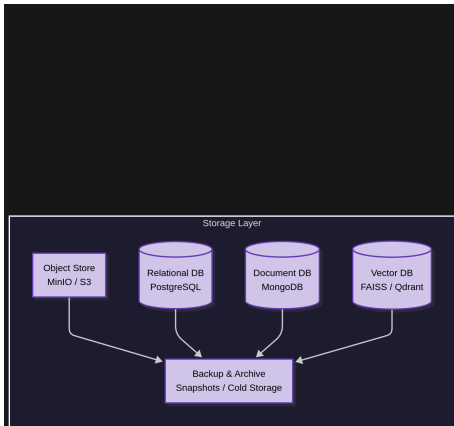
Components



Section 9

Storage Layer

Components



Section 10

Engineering Process

Engineering Process

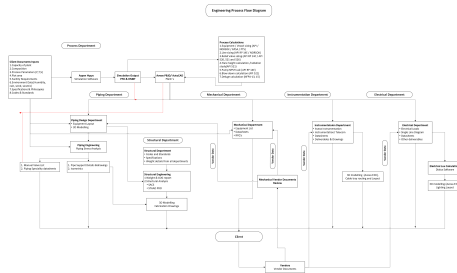
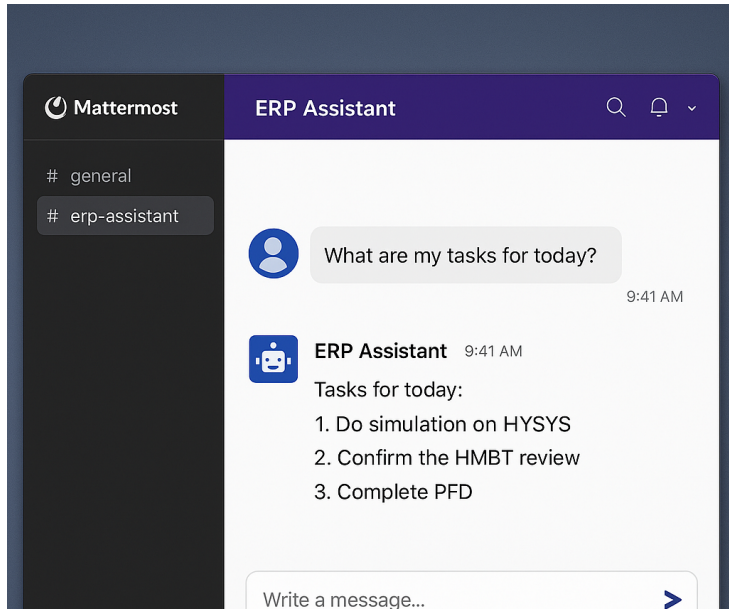


Figure: Engineering Process

Section 11

User Interface

User Interface



User Interface

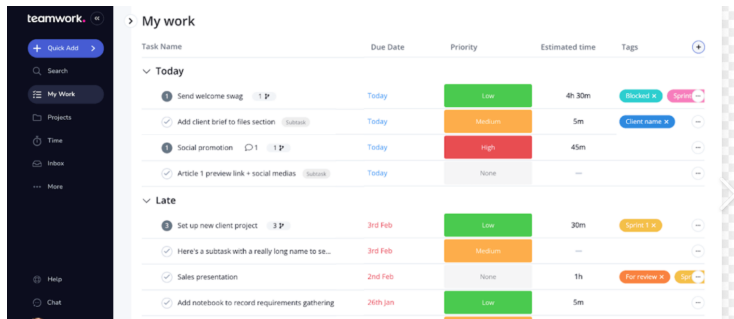


Figure: User Interface Overview