

Project: wear

Summary

wear is a comprehensive platform for integration, automation, and analytics for e-commerce and brick-and-mortar retail. It brings together Odoo 17, 1C (U PP), Kafka (KRaft), ClickHouse, FastAPI, PostgreSQL, Grafana, CI/CD, a Telegram bot, and AI services. The platform covers data synchronization, plan-vs-actual analysis, forecasting, store replenishment, shelf-space-aware sales planning, store database management, barcode generation, monitoring, full change-history storage, and intelligent user assistance.

Architecture

High-level architecture includes:

- Odoo 17 (ERP)
- 1C (U PP) via OData
- FastAPI integrator
- Apache Kafka (KRaft + SASL)
- ClickHouse (DWH)
- PostgreSQL
- Grafana and Power BI
- Telegram Bot (AI & BI)
- Docker Compose, GitLab CI/CD, Proxmox/Kubernetes

Services and Components

Odoo 17 — Product, inventory, and sales management; custom integration modules.

1C (U PP) — System of record; OData-based integration; GUID consistency supported.

Kafka (KRaft) — Event backbone capturing and retaining full change history for any enterprise document.

ClickHouse — Data marts for plans/actuals, analytics, and historical change storage.

FastAPI — Integration service with background workers, logging, and public/internal APIs.

PostgreSQL — Operational database for Odoo.

Grafana — Dashboards and alerting, integrated with Telegram.

DevOps — Docker Compose, GitLab CI/CD, Proxmox/Kubernetes.

Business Functions

- 1) Plan-vs-Actual analysis and forecasting — ClickHouse data marts and AI-driven forecasting models.
- 2) Store replenishment — analysis of inventory and sales; automatic generation of transfer orders.
- 3) Shelf-based planning — planning that accounts for shelf capacity and ties into replenishment logic.
- 4) Store database management — centralized storage and analytics across all stores.
- 5) Unified barcode system — generation and management of barcodes for all entities.
- 6) Change-history storage — full audit trail of documents via Kafka + ClickHouse.

Telegram Bot (Notifications, BI, and AI)

- BI queries: plan vs. actual, forecasts, analytics.
- Integration with Kafka and ClickHouse: executes SQL and returns results.
- Receives Grafana alerts directly in Telegram.
- AI-powered: understands natural-language questions, generates SQL, returns forecasts.
- User assistance: tips, metric explanations, and guided analytics.

AI Capabilities

- Sales forecasting by SKU×store.
- Explanations of plan-vs-actual deviations.
- User guidance for working with the system.
- Automatic SQL generation for ClickHouse.
- Extensions: voice queries; forecasting and planning scenarios.

Results and Impact

- Reduced manual work and integration time.
- Realistic plans that account for shelf space.
- Lower out-of-stock rates and higher turnover.
- Centralized management of store databases.
- Unified barcode system across all entities.
- Monitoring and alerting powered by Grafana.
- Storage of the full change history for all documents.
- AI bot for user assistance and forecasting.

Diagrams

Architecture with stores and bidirectional exchanges



