CB SYSTEMS INTERNATIONAL · PRODUCT DATASHEET 2025

VisionAI VMS

Intelligent Video Management System

Enterprise-grade, containerized VMS platform engineered for high-security environments — combining microservices reliability with AI-powered analytics for facilities from judicial complexes to military installations and national infrastructure.

10,000+	8	99.9%	<50ms
CAMERA CAPACITY	AI MODULES	UPTIME SLA	STREAM LATENCY

On-Premise · Air-Gap Ready · Docker Native · REST API · ANPR / LPR · AI Analytics

VisionAI VMS
Intelligent Video Management System

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CORE CAPABILITIES

VisionAI VMS
Intelligent Video Management System

Every Feature Production-Grade

LIVE STREAMING

Live Multi-Stream Monitoring

Up to 64 simultaneous RTSP/RTMP feeds in configurable grid layout with sub-50ms latency via WebRTC.

RTSP · RTMP · WebRTC · HLS

RECORDING

Intelligent Recording & Playback

Continuous, motion-triggered and scheduled recording with timeline scrubbing and frame-accurate export.

Motion Trigger · Scheduled · Continuous

ANPR / LPR

License Plate Recognition

EasyOCR + OpenCV real-time plate detection with watchlist matching and instant alert dispatch.

EasyOCR · OpenCV · Watchlist Alerts

HUMAN BEHAVIOR

Employee Efficiency & Behavior Analysis

Custom pose-estimation model tracks activity, idle time, zone violations and unsafe postures. Auto shift reports.

Pose Estimation · 18 Activity Classes · Scorecards

VEHICLE SPEED

Camera-Based Speed Tracking

Radar-free speed estimation using optical flow. Captures over-speed events with ANPR sync (±3 km/h, up to 120 km/h).

Optical Flow · Over-Speed Alert · ANPR Sync

FIRE & SMOKE

Visual Fire & Smoke Detection

CNN model detects ignition events before thermal sensors trigger. Integrates with BMS/fire suppression via MQTT.

CNN Model · BMS Integration · <5 sec Alert

INVENTORY

Vision-Based Inventory Management

Shelf occupancy monitoring, stock level tracking and unauthorized removal detection with ERP-ready REST API.

Shelf Monitoring · Stock Alerts · ERP API

MULTI-TENANT

Multi-Tenant RBAC Management

Full tenant isolation with role-based access control, JWT auth, and granular per-resource permissions.

RBAC · JWT · Tenant Isolation

AUDIT LOGS

Compliance & Audit Logging

Tamper-evident, immutable logs for all operator actions and system events. Meets judicial and defence mandates.

Immutable Logs · Export · Retention Policy

AI ANALYTICS

Real-Time AI Object Detection

YOLOv8-powered multi-class detection — person counting, crowd density, perimeter breach and loitering detection.

YOLOv8 · Edge Inference · 30fps

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AI ANALYTICS ENGINE

VisionAI VMS
Intelligent Video Management System

8 AI Modules. One Unified Platform.

01

OBJECT DETECTION

Person & Vehicle Tracking

Multi-class detection across all feeds simultaneously. Tracks individuals and vehicles across zones with persistent IDs.

96.4% MAP ACCURACY

30fps PROCESSING RATE

02

LICENSE PLATE RECOGNITION

ANPR with Watchlist Alerting

Number plate extraction from vehicles up to 120 km/h. Cross-referenced against dynamic watchlists with sub-second alerts.

94.8% RECOGNITION RATE

<800ms ALERT LATENCY

03

BEHAVIORAL ANALYTICS

Anomaly & Perimeter Detection

Virtual tripwire, zone intrusion and loitering detection. Crowd density with automated escalation workflows.

<2% FALSE POSITIVE RATE

24/7 CONTINUOUS OPERATION

04

FACE ANALYTICS

Facial Recognition Integration

Plugin-ready FR adapter supporting external engines via REST API. Privacy-mode with configurable retention policies.

API-Ready INTEGRATION MODE

GDPR COMPLIANCE READY

05

HUMAN BEHAVIOR

Employee Efficiency Analytics

Pose estimation model tracks presence, task engagement, idle periods, zone violations and unsafe ergonomic postures.

18 Classes ACTIVITY STATES

Shift Reports AUTO-GENERATED

06

SPEED ENFORCEMENT

Vehicle Speed Estimation

Radar-free camera-only speed measurement using optical flow and calibrated reference markers. Court-ready evidence.

±3 km/h SPEED ACCURACY

120 km/h MAX MEASURABLE

07

FIRE & SMOKE

Visual Fire & Smoke Detection

CNN trained on fire/smoke datasets detects ignition events before thermal sensors. Triggers BMS suppression relays automatically.

<5 sec DETECTION-TO-ALERT

BMS / MQTT AUTOMATION OUTPUT

08

INVENTORY

Visual Inventory Management

Shelf occupancy, pallet position and item count monitoring in warehouses. Flags unauthorized removal with full audit trail.

Real-Time STOCK MONITORING

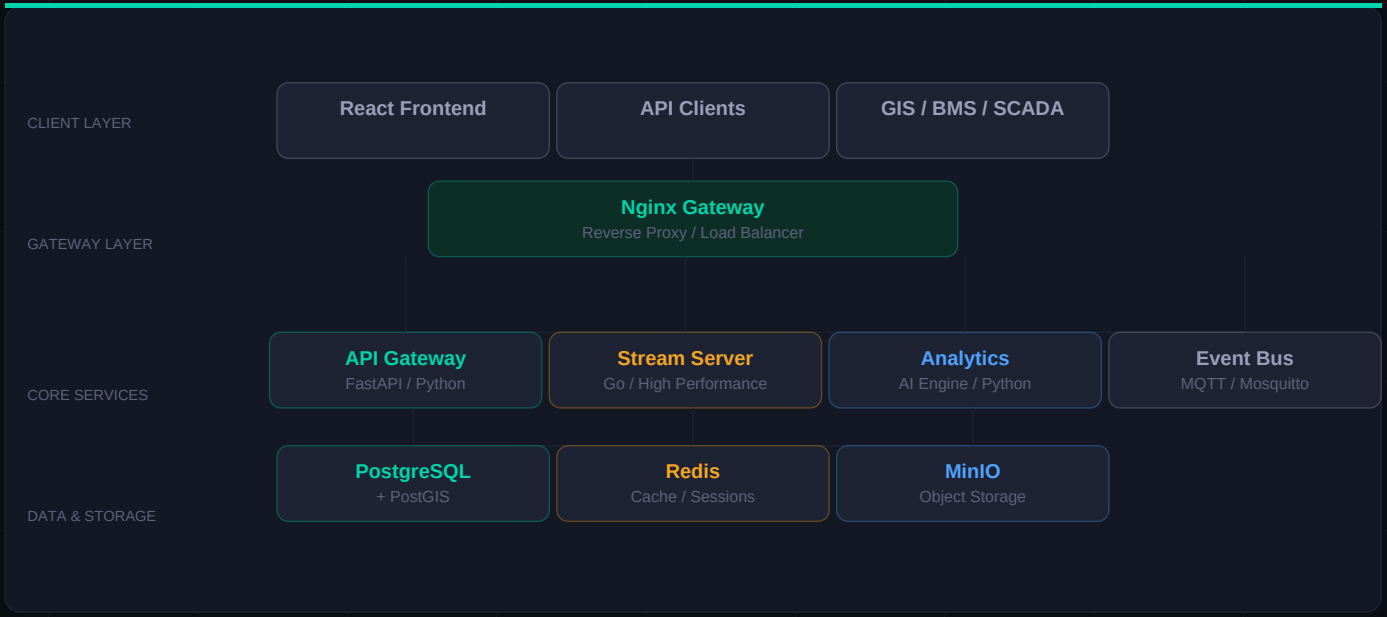
ERP-Ready INTEGRATION API

Pluggable Plugin Architecture — Add new AI capabilities to a live system without restarting services. Deploy custom models in under 30 minutes.

SYSTEM ARCHITECTURE

VisionAI VMS
Intelligent Video Management System

Microservices Foundation



TECHNOLOGY STACK

API / BACKEND	STREAMING	AI / CV	DATA	INFRA	FRONTEND
FastAPI Python 3.11 Pydantic v2 SQLAlchemy	Go 1.21 RTSP/RTMP WebRTC FFmpeg	YOLOv8 EasyOCR OpenCV PyTorch	PostgreSQL PostGIS Redis 7 MinIO	Docker Compose Nginx Kubernetes	React 18 TypeScript Vite Zustand

SCALABILITY

50–200	200–2K	10K+	Petabyte	<50ms	99.9%
STARTER (CAMERAS)	ENTERPRISE (CAMERAS)	NATIONAL SCALE	STORAGE CAPACITY	LIVE LATENCY	UPTIME SLA

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