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CASE STUDIES · 2026

Industrial AI, proven in the field

Ten projects in wastewater, energy, palm oil, manufacturing and infrastructure, covering China and Southeast Asia.

Water & energy
Closed-loop AI process control

Palm oil
Grading, process optimization, digital twin

Safety & operations
AI vision, predictive maintenance

OVERVIEW

Ten cases at a glance

Every project starts from a concrete operating problem: unstable inflow, energy cost, weighing fraud, unplanned downtime, unsafe work. Each is measured against the KPIs the client already uses.

#	SECTOR	CLIENT	LOCATION	HIGHLIGHT
01	Wastewater	**Jiaxing Port Industrial Wastewater Plant**	China	Operating cost −20%; issue response from hours to under 15 min
02	Wastewater	**A 200,000 t/d municipal & industrial plant**	Zhejiang, China	Six AI dosing and control subsystems in operation since 2021
03	Energy	**Four integrated energy stations**	China	Operating cost −32%; 15.8 GWh saved
04	Water utility	**A Southeast Asian national wastewater operator**	Southeast Asia	Unified monitoring for 8,000+ decentralized stations
05	Palm oil	**A palm oil producer in West Kalimantan**	Indonesia	Unmanned weighbridge; weighing leakage closed
06	Palm oil	**Four plantation and refining groups**	Malaysia & Indonesia	Grading, sterilization, digital twin; 60 mills signed
07	Manufacturing	**A coking plant**	Inner Mongolia, China	Bearing faults detected before failure
08	Manufacturing	**A state-owned food processing group**	China	AI vision verifies SOP steps on the line
09	Infrastructure	**Transport terminal, rail operator, motorsport event**	Malaysia	680-channel AI CCTV; alerts in under 1 s
10	Smart park	**A multinational high-tech park**	Kuala Lumpur	Visitor registration from 5 min to 30 s

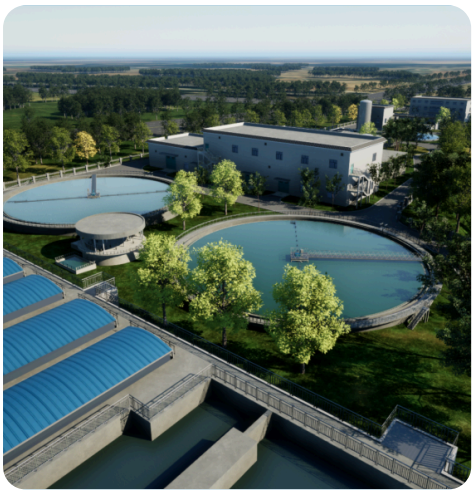
About client confidentiality. Our clients are bound by confidentiality agreements, so we describe them by sector, size and region. The one project named here, the Jiaxing Port Industrial Wastewater Plant, appears in published government case studies. Reference calls can be arranged on request with client approval.

CASE 01 · WASTEWATER

Jiaxing Port Industrial Wastewater Plant

A chemical-park plant where inflow changes by the hour. It now runs on AI process control and has become a national reference for industrial-park water management.

CLIENT	SCALE	IN OPERATION	STANDARD
Jiaxing Port Industrial Wastewater Plant, China Chemical New Materials (Jiaxing) Park	**79,800 t/day · three treatment lines**	**Since June 2023**	**GB 18918-2002 Class 1A**



The challenge

- Inflow from dozens of chemical producers fluctuates sharply in load and composition.
- Three lines run in parallel: high-strength (anaerobic + AO + MBBR), low-strength (A2O + MBBR) and clean drainage (sulfur-autotrophic denitrification + BAF). All finish with ozone and magnetic coagulation.
- Long process lag means operators find a problem only after it has happened.

What we did

- Digital twin of the full plant, with ITS intelligent dispatch and CV inspection.
- Nine closed-loop control subsystems: distribution, aeration, carbon source, flow, coagulant, sludge return, ozone, powdered carbon and disinfection.
- The industrial model predicts water quality, energy and equipment state, then adjusts set-points automatically.

Results

−20%
overall operating cost

−20%
electricity and chemical dosing

<15 min
issue response, down from 4–72 hours

100×
faster process tuning

A finding no operator was looking for

The model found that slight under-aeration "starves" the microbes and switches on their sulfur-consuming pathway. This cuts carbon-source dosing and electricity together. It complements the plant's use of sulfur-rich wastewater from park enterprises as a substitute for purchased carbon source.

Public recognition

Featured in China's Ministry of Ecology and Environment briefing No. 608 (Nov 2024) as a model of pollution- and carbon-reduction in industrial parks. A Vice Minister issued a written instruction to promote it. The efficiency of manual record-keeping also improved by 99%.

CASE 02 · WASTEWATER

A 200,000 t/d municipal & industrial plant

CLIENT	LOCATION	IN OPERATION	STANDARD
Large wastewater plant serving a city and surrounding towns	Zhejiang, China	Since September 2021	Zhejiang DB33/2169-2018

The challenge

- One of the largest plants in the portfolio, with many parallel lines and mixed industrial and domestic inflow.
- Strict local discharge limits and long process lag make sensing, self-learning, simulation and control all harder.

What we did

- Multi-stage AO + high-efficiency sedimentation + ozone + MBBR, run under six AI subsystems: aeration, carbon source, coagulant, ozone, flow control and disinfection.
- Continuous self-learning control that adapts to seasonal and daily load swings.

Portfolio results across 14 AI-controlled wastewater plants

420k t/d treated under AI control

−17% electricity

−20% chemical dosing

+35% labor productivity

Together: about RMB 58 million in economic benefit and 74,000+ t of CO_2 avoided per year, equal to the annual electricity use of more than 48,000 households.

CASE 03 · ENERGY

Four integrated energy stations

CLIENT	LOCATION	SCOPE	STATUS
Industrial-park energy stations	China	Generation, grid, load & storage	4 stations in operation

The challenge

- Energy systems ran separately and were dispatched by hand.
- Inaccurate load forecasts led to low utilization of storage and generation assets.

What we did

- An energy agent coordinating multiple energy sources, load forecasting and storage dispatch.
- An energy cockpit for real-time monitoring and carbon accounting.

−32% overall operating cost

15.8 GWh electricity saved

12M RMB direct benefit per year

11k+ t CO_2 avoided per year

Selected as an AI application demonstration project of the G60 Science & Technology Innovation Corridor.

CASE 04 · WATER UTILITY

A national wastewater operator in Southeast Asia

When thousands of small plants are spread across a country, visibility is the first problem to solve. Optimization comes after it.

CLIENT	LOCATION	SCALE	SCOPE
National wastewater operator	**Southeast Asia**	**8,000+ decentralized treatment stations**	**Monitoring, maintenance & optimization platform**

The challenge

- Monitoring split across thousands of remote sites.
- Incomplete SCADA coverage at small, unmanned stations.
- Reactive maintenance cycles and high emergency repair costs.
- Safety and compliance risk at unmanned sites; slow decisions on disconnected data.

What we deliver

- **IoT gateways & predictive sensors** connect equipment and give real-time visibility.
- **ITS Smart Management Platform** centralizes operations, personnel, permits and dashboards.
- **AI process optimization**, using closed-loop models that balance compliance against resource use.
- **Closed-loop maintenance**: anomalies automatically trigger work orders and mobile dispatch.

ARCHITECTURE

Edge
IoT gateways, AI cameras, sensors, legacy PLC/SCADA

›

Platform
ITS business & intelligence platform, workflows, analytics

›

AI control
Models adjust equipment through PLC/DCS

›

Operations
Mobile work orders, maintenance dispatch, compliance records

Expected benefits

- Visibility across distributed plants
- Less reactive maintenance and emergency cost
- Stronger compliance and safety management
- Optimized energy and chemical use

CASE 05 · PALM OIL

Unmanned weighbridge and digital twin for a palm oil mill

Weighing is where a palm oil mill's money changes hands, and where it leaks. We built a fully unmanned, closed-loop weighing system.

CLIENT	LOCATION	STARTED	STATUS
Mid-sized palm oil plantation & processing company, part of a larger group	**West Kalimantan, Indonesia**	**2025**	**Phase 1 in stable operation**



The challenge

- Weighing fraud on fresh fruit bunches (FFB) and crude palm oil (CPO) transfers.
- Labor-intensive manual control at the scale.
- Weighing data that could not be traced end to end.

What we did

- **Vehicle management system**: QR self-service kiosks, RFID cards and automatic barriers.
- **AI vision oversight**: multi-angle cameras check truck position and flag people or objects on the scale.
- **Transit-path monitoring** between scale and discharge; top-down tanker inspection for water (phase 2).
- **Digital twin** unifying logistics, scales and work areas. Net weight and settlement documents are produced in seconds.

Unmanned
closed-loop weighing from gate to exit

Seconds
to generate settlement documents

2
workflows: fruit bunches and oil tankers

400+
Malaysian mills the design can replicate to

Next phases: plant-wide dispatch and AI raw-material quality recognition.

CASE 06 · PALM OIL

AI across the palm oil mill

Four groups engaged us at different points of the mill, from fruit reception to sterilization to the control room. The common thread is an AI Process Agent that learns each mill's process.

A global integrated palm oil group

AI fruit-bunch grading with robotic-arm sorting at the mill, connected over satellite internet.

A leading palm oil refining group

Upgrade of the central control room to a digital twin for four major mills in Indonesia.

A major Malaysian plantation group

Integrated smart management: IoT predictive maintenance and AI sterilizer scoring.

A long-established Malaysian plantation company

AI process control for sterilization, using millimeter-wave radar sensing.



Three sterilization cycles become two

Mills traditionally run triple-peak sterilization, a practice inherited over generations that nobody could fully explain. By scoring every fruit bunch (grade A/B/C) and linking the scores to extraction results, the AI showed that good fruit reaches its best extraction in two cycles. That means less steam, shorter cycles and more throughput, with no loss in oil yield.

CLOSED LOOP ACROSS THE MILL

Grade
AI vision on ripeness, defects, oil potential

›

Sterilize
Pressure and time curves tuned per batch

›

Press
Pressure, speed, temperature optimized for OER

›

Clarify
Centrifuge speed and feed rate to cut oil loss

›

Learn
Results feed back into the model

60
mills signed across Southeast Asia

17%+
lower steam and power use*

+0.5%
oil extraction rate*

~13 mo
average payback period*

** Projections across signed mills, to be replaced by measured results as deployments go live. For a large mill, every +0.1% OER is significant additional revenue.*

CASE 07 · MANUFACTURING

Predictive maintenance at a coking plant

CLIENT	LOCATION	SCOPE	ASSETS
Coking and chemical producer	Inner Mongolia, China	IoT smart O&M platform	Critical rotating equipment

What we did

Online monitoring of critical equipment with vibration, current and temperature sensing, plus AI fault diagnosis and early warning.

Key event

The system spotted abnormal data on a water-supply pump, kept alerting, and located inner-race and rolling-element bearing faults well before failure.

Value

Maintenance moved from reactive to proactive. Unplanned downtime was avoided, production continuity protected and maintenance cost cut.

CASE 08 · MANUFACTURING

AI vision for SOP compliance in food processing

CLIENT	LOCATION	SCOPE	PLATFORM
State-owned food processing group	China	SOP action recognition trial	Industrial Safety OS

Using the client's own footage, we trained action-recognition models for a production SOP. They check that each step is done, in the right order and with the right tools.

	TRADITIONAL SUPERVISION	AI VISION SOP
Speed	Spot checks, after the fact	Real-time, millisecond feedback
Standard	Each supervisor's judgment	One objective algorithm
Coverage	Patrols with blind spots	Every station, 24/7
Records	Handwritten logs	Video evidence and structured data

People

Face ID, PPE, posture, off-post

Things

Valves, gas cylinders, tools

Environment

Fire, smoke, gas, zone intrusion

Process

Step order, timing, interlocks

These atomic capabilities combine like building blocks, so new scenarios are configured rather than re-coded. Typical delivery takes 3–4 months, including a month of on-site tuning.

CASE 09 · INFRASTRUCTURE

AI for transport hubs and public venues

Large public sites produce more video and sensor data than any control room can watch. AI turns it into alerts, evidence and operating insight.

A major integrated transport terminal · Kuala Lumpur

Smart security and operations monitoring across the whole terminal, including recognition of e-hailing vehicles by their registered stickers.

680	24/7	Auto
AI CCTV channels analyzed	continuous monitoring	e-hailing vehicle recognition

A metropolitan rail operator · Malaysia

IoT predictive maintenance for escalators and elevators. Connected sensors stream operating data, and AI flags anomalies before they become outages.

An international motorsport event · Malaysia

AI vision for both safety and commercial value. A multimodal fusion engine supports crowd safety. Audience analytics inform food, signage, VIP routes and booth placement.

>98%	<1s	+30%	12
face capture accuracy in complex scenes	line-crossing alert	on-site dispatch efficiency	types of dangerous behavior recognized

CASE 10 · SMART PARK

Visitor management for a multinational high-tech park

Dozens of global technology companies, heavy visitor traffic and a paper logbook. We replaced it with an automated loop from booking to exit.

CLIENT	LOCATION	SCOPE	INTEGRATION
High-tech park hosting dozens of multinationals	**Kuala Lumpur, Malaysia**	**Multilingual visitor management system**	**Face-recognition gates, 3D e-fence, smart cameras**

The challenge

- Manual registration took about 5 minutes per visitor.
- Identity misuse and unauthorized entry were real risks.
- No data on visitor flows to plan security staffing.

What we did

- Mobile pre-booking with self-service face enrollment, in several languages.
- Face-recognition turnstiles, 3D electronic fencing and AI cameras.
- Real-time heat maps for security operations.

30 s
registration time, down from about 5 min

+80%
throughput at peak hours

>95%
abnormal behavior recognition

Live
heat maps to deploy security staff

START WITH A PILOT

Choose the problem that costs you most today. We will scope a pilot with measurable KPIs and a clear path to scale.

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