

攀攀科技 —— 与您携手, 共创智能货架新时代
立即开启您的智能化之旅!

Panpan technology —— join hands with you to create a new era of intelligent shelves
Start your intelligent journey right away!



RETAIL NEURAL GRID BUILDER

零售神经网络构建者

每一家实体店都拥有「智慧决策大脑」
从电子价签的毛细血管, 到零售决策的神经网络

Every brick-and-mortar store has a "smart decision-making brain"
From the capillaries of electronic price tags to the neural network of retail decision-making



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COMPANY PROFILE

公司简介

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国家
Country

6000+

门店数量
Number of stores

30+

专利
Patents

50%+

研发人员
R&d personnel

3200m²

工厂
Factory

5+

新品
New product

广州攀攀科技有限公司成立于2015年,是一家集研发、制造、销售为一体,提供基于电子价签(ESL)系统的无线智能设备和物联网技术服务的综合性供应。

公司以客户为中心,利用软件、硬件和云服务,为零售、电子、烘焙、服装、仓储物流、生鲜农产品、连锁超市等行业的客户提供帮助。这有助于客户降低运营成本,优化工作流程,提高协作效率。目前,攀攀科技的客户遍布全球30多个国家和地区。

多年来,公司一直坚持“创新是发展的关键”。其专业的研发团队不断探索新的应用领域,专注于持续的研发,以满足不断变化的市场需求。

攀攀科技拥有3200平方米的生产厂房,已通过iso9001:2015质量管理体系认证。工厂配备了先进的生产线,包括高速SMT生产线、焊锡生产线和全自动检测设备,实现了标准化生产,确保了高质量的标准和可靠的交付能力。

Guangzhou Panpan Technology Co., Ltd. was established in 2015. It is a comprehensive supplier integrating R&D, manufacturing and sales, providing wireless intelligent devices and Internet of Things technology services based on electronic shelf label (ESL) systems. The company is customer-centric and utilizes software, hardware and cloud services to provide assistance to clients in industries such as retail, electronics, baking, clothing, warehousing and logistics, fresh agricultural products, and chain supermarkets. This helps customers reduce operating costs, optimize work processes and improve collaboration efficiency. At present, Panpan Technology's customers are spread across more than 30 countries and regions around the world. For many years, the company has always adhered to the principle that "innovation is the key to development." Its professional R&D team is constantly exploring new application fields and focusing on continuous R&D to meet the constantly changing market demands. Panpan Technology has a production plant covering an area of 3,200 square meters and has passed ISO9001:2015 quality management system certification. The factory is equipped with advanced production lines, including high-speed SMT production lines, soldering production lines and fully automatic inspection equipment, achieving standardized production and ensuring high-quality standards and reliable delivery capabilities.



定位:
全球AIoT零售神经网络构建者

Positioning:
Global AIoT retail neural grid builder

使命:
通过AIoT²技术,将混乱的线下数据转化为可执行的智慧,让零售经营像天气预报一样精准

Mission:
Through AIoT² technology, transform chaotic offline data into actionable intelligence, making retail operations as precise as weather forecasts

规模:
成立10年,服务全球30+国家、6000+门店

Scale:
Established 10 years ago, serving over 30 countries worldwide with more than 6,000 stores

ORGANIZATIONAL STRUCTURE

组织架构



CORPORATE CULTURE

企业文化



使命
通过AI赋能行业与生活,用科技承载情怀,
为世界创造温度与价值。



Mission
Empower industries and life with AI, carry
sentiments with technology, and create
warmth and value for the world.



愿景
成为 AI 时代中引领智慧与温度并存的全球科技品牌。

Vision
To become a global technology brand that
leads the coexistence of wisdom and
warmth in the AI era.

价值观
科技向善,赋能情怀
客户为先,共创未来
创新驱动,追求卓越
信任协作,简单高效
担当责任,成就非凡

Values
Technology for good, empowering sentiments
Customer first, creating the future together
Innovation-driven, pursuit of excellence
Trust and collaboration are simple and efficient
Take responsibility and achieve extraordinary
things

ENTERPRISE BRAND 企业品牌

品牌架构 Brand architecture

层级 Hierarchy	品牌名称 Brand name	定位 Positioning	市场 Market	核心价值 Core value
主品牌 Main brand	PanPanTech	全球化 AIoT 零售科技集团 A global AIoT retail technology group	全球 Global	技术可信度背书 Endorsement of technical credibility
技术母品牌 Tech Parent Brand	NeuroGrid 神经网络 NeuroGrid neural network	零售决策操作系统 Retail decision-making operating system	中国为主 Dominated by China	“货架 - 客流 - 供应链”全链路赋能 "Shelf - Foot Traffic - Supply Chain" Full-Link Empowerment
子品牌 Sub-brand	AiEinkSmart	电子价签与货架数字化专家 Expert in digital electronic price tags and shelves	海外市场 Overseas market	全球最低功耗电子价签技术 The world's lowest power electronic price tag technology
子品牌 Sub-brand	Pyroglaux	客流分析与空间智能方案提供商 Provider of passenger flow analysis and spatial intelligence solutions	海外市场 Overseas market	隐私合规的匿名客流分析技术 Privacy-compliant anonymous passenger flow analysis technology

AiEinkSmart 品牌定位 Brand positioning

使命: 让每一家实体零售店都拥有「智慧决策大脑」

愿景: 成为全球零售AIOT神经网络的构建者

核心价值主张: 从数据噪声中提取决策信号, 让零售经营像天气预报一样精准

Mission: To equip every brick-and-mortar retail store with an "intelligent decision-making brain"

Vision: To become the builder of global retail AIOT neural networks

Core value proposition: Extract decision signals from data noise to make retail operations as precise as weather forecasts

MAIN PRODUCTS 主营产品

生态级解决方案产品矩阵架构

Focus on the sub-sectors of passenger flow management

模块 Module	PanPanTech方案 PanPanTech solution	某品牌对标产品 Vusion's benchmark products	差异点 Difference point
数据中枢 Data hub	NeuroGrid Os	Vus XXXXXX	边缘计算节点自治架构 Autonomous architecture of edge computing nodes
硬件层 Hardware layer	AiEinkSmart Pro	XXX imagotag ESL	7年续航 vs 5年 7 years of battery life vs. 5 years
分析层 Analysis Layer	Pyroglaux Analytics	Captana	匿名化客流建模 Anonymized passenger flow modeling
交互层 Interaction layer	NeuroGrid Cortex	Engage Retail Media	动态定价API开放度更高 The dynamic pricing API is more open

生态合作标识

Ecological Cooperation Logo

品牌名称 Brand name	核心业务 Core business	产品矩阵定位 Product matrix positioning	补充说明 Supplementary explanation
PanPanTech	统一管理旗下技术品牌与产品线 Unified management of the company's technology brands and product lines	集团级平台与生态中枢 Group-level platform and ecosystem hub	品牌本身不直接承载单一产品, 而是负责整体技术路线、产品矩阵与市场协同 The core algorithms and intelligent decision-making brand covering various business scenarios form the software and algorithm foundation for all intelligent products of the group.
NeuroGrid	AI、IoT、数据决策、AI 机器人、仿生机器人 AI, IoT, data decision-making, AI robots, bionic robots	AI Agent / 算法中台 AI Agent / Algorithm Middle Platform	覆盖多业务场景的核心算法与智能决策品牌, 是集团所有智能产品的软件与算法基础 The core algorithms and intelligent decision-making brand covering various business scenarios form the software and algorithm foundation for all intelligent products of the group.
神经网络 (Neural Grid)	价签管理软件、客流分析软件 Price tag management software, passenger flow analysis software	ESL 价签软件 (SaaS / License) ESL Price Tag Software (SaaS / License)	面向零售与空间管理场景的中台软件名称, 对应具体可商业化的软件产品 The name of the middle-platform software for retail and space management scenarios, corresponding to specific commercializable software products.
AiEinkSmart	电子墨水屏及相关产品 Electronic ink screens and related products	E-Ink 艺术画框系统 (平台接入终端) E-Ink Art Frame System (Platform Access Terminal)	聚焦 E-Ink 显示终端作为长期内容载体, 是软件与内容平台的稳定入口 Focusing on E-Ink display terminals as a long-term content carrier, it serves as a stable entry point for software and content platforms.
Pyroglaux	客流监测、分析相关产品 Passenger flow monitoring and analysis-related products	数据感知与空间分析模块 Data Sensing and Spatial Analysis Module	作为 AI Agent 与运营算法的重要数据输入模块, 为定价、内容与空间决策提供支持 As an important data input module for AI Agents and operational algorithms, it provides support for pricing, content and space decisions.

CORE ARCHITECTURE 核心构架

NeuroGrid 神经网络——零售决策操作系统

NeuroGrid - A retail decision-making operating system



感知层 (AiEinkSmart)

- 0.1秒极速变价电子价签, 7年超长续航
- 双顶尖屏幕供应链 (兴泰科技+东方科脉), 年供108M片双保险



神经层 (Pyroglax Analytics)

- GDPR合规匿名化热力分析, 零存储人脸数据
- 3D LiDAR捕捉顾客动线, 坪效提升23%



决策层 (NeuroGrid Cortex)

- 边缘计算节点实现200ms级实时响应+AI巡检自动补货机器人+智能清洁机器人
- 拥有统一价格、促销、降价优化核心算法 形成 智能定价软件 (大脑决策) → 电子价签系统 (神经末梢执行) → 智能财务 → 智能仓储 一体化数据链式的方案, 让促销ROI提升210%, 提升GMV (商品交易总额)、毛利率、库存周转率, 并降低运营费用和损耗率



Perception Layer (AiEinkSmart)

- 0.1-second ultra-fast price change electronic price tag, 7-year ultra-long battery life
- Dual top-notch screen supply chain (Xingtai Technology + Dongfang Kemai), with an annual supply of 108 pieces, providing a double guarantee



Neural layer (Pyroglax Analytics)

- Gdpr-compliant anonymous thermal analysis, zero storage of facial data
- 3D LiDAR captures customer movement routes, increasing floor efficiency by 23%



Decision-making layer (NeuroGrid Cortex)

- Edge computing nodes achieve real-time response at the 200ms level +AI inspection, automatic replenishment robots + intelligent cleaning robots
- With a core algorithm for unified pricing, promotion, and price reduction optimization, it forms an integrated data chain solution of intelligent pricing software (brain decision-making) → electronic price tag system (nerve endings execution) → intelligent finance → intelligent warehousing, which increases the promotion ROI by 210%, and enhances GMV (Gross merchandise Volume), gross profit margin, and inventory turnover rate. And reduce operating costs and loss rates

SIX HARDCORE ADVANTAGES 六大硬核优势

双源顶尖供应链

兴泰科技 (元太战略伙伴) + 东方科脉 (SXS XX), 任意一家可独立满足亿级需求

Dual-source top-notch supply chain

Xingtai Technology (a strategic partner of E Ink) and Dongfang Kemai (a supplier of SES), either of them can independently meet the demand of hundreds of millions



智能化制造基地

3200㎡工厂, 10条SMT产线, 不良率<0.05%

Intelligent manufacturing base

A 3,200-square-meter factory with 10 SMT production lines has a defect rate of less than 0.05%



高校联合研发

港科大低功耗协议+广州商学院场景模型, 共享政府补贴资金池

Joint research and development by universities

The low-power protocol and broad market scenario model of the Hong Kong University of Science and Technology share the government subsidy fund pool



铁三角交付体系

月度31M片产能, IATF16949+ISO9001双认证, 72小时应急切换

The Iron Triangle delivery system

Monthly production capacity of 31M pieces, IATF16949+ISO9001 dual certification, 72-hour emergency switching



全栈自研算法

动态定价/超低功耗/开放API, 对接SAP、Oracle等30+系统

Full-stack self-developed algorithm

Dynamic pricing, ultra-low power consumption, open API, and integration with over 30 systems including SAP and Oracle



多品牌兼容

自研MQTT适配层, 旧设备利旧省55%迁移成本

Multi-brand compatibility

Self-developed MQTT adaptation layer, reusing old devices to save 55% of migration costs



R&D 研发团队



研发团队:

团队规模占公司总员工50%以上,每年推出超5个新产品,持续提供尖端技术与创新产品。融合硬件/软件/通信研发能力,兼具丰富线下实体业务(尤其零售行业)经验。

技术成果:

累计申请并获专利30余项,覆盖硬件设计至软件开发多领域,彰显技术创新深厚积淀。

R&D

The team size accounts for more than 50% of the company's total staff. Every year, it launches over 5 new products and continuously provides cutting-edge technologies and innovative products. Integrating hardware, software and communication R&D capabilities, and having rich experience in offline physical business (especially in the retail industry).

Technical achievements

More than 30 patents have been applied for and obtained cumulatively, covering multiple fields from hardware design to software development, highlighting the profound accumulation of technological innovation.

高校联合——把“实验室”搬到现场

University Collaboration - Moving the "laboratory" to the site

高校联合研发项目及客户共享资源

- 与香港科技大学合作低功耗网络协议、边缘计算算法联合课题;+软件加入AI算法团队,研发AI Agent 能够每秒处理多条消费数据,实时调整生产与库存(例如中秋月饼自动停产指令),这一套逆向供应链体系明显降低了运营误差率,从而实现精准供货和高效运营。
- 与广州商学院合作零售场景用户动线&价格弹性模型研究。

Joint research and development projects of universities and shared resources with customers

- Collaborated with the Hong Kong University of Science and Technology on a joint project on low-power network protocols and edge computing algorithms; The software has been integrated with the AI algorithm team to develop an AI Agent that can process multiple consumption data points per second and adjust production and inventory in real time (for example, the automatic production halt instruction for mooncakes during the Mid-Autumn Festival). This reverse supply chain system has significantly reduced operational error rates, thereby achieving precise supply and efficient operation.
- Collaborated with Guangzhou Business College to conduct research on user movement lines and price elasticity models in retail scenarios.

PRODUCTION CAPACITY 生产能力

SMT

配备高速SMT生产线
Equipped with a high-speed SMT production line

我们具备强劲的生产与交付能力:

拥有 3200 平方米现代化制造工厂,配备8条高速 SMT 生产线、专业焊接线及全自动测试设备,从生产环节保障产品质量;搭载 MES 生产管理系统,可实现百万级量产,同时精准控制质量与成本,确保交付可靠。

We have strong production and delivery capabilities

With a 3,200-square-meter modern manufacturing plant, equipped with high-speed SMT production lines, professional soldering lines and fully automatic testing equipment, it ensures high-quality products from the production process. Equipped with the MES production management system, it can achieve million-level mass production, while precisely controlling quality and cost to ensure reliable delivery.



3200

平方米

拥有3200平方米现代化制造工厂
It has a 3,200-square-meter modern manufacturing plant



SCENARIO-BASED SOLUTIONS

场景化解决方案



场景 Scene	痛点 Pain point	方案 Plan	成果 Outcome
智能补货 Intelligent replenishment	缺货导致销售损失 The shortage of stock led to sales losses	NeuroGrid预判补货指令同时让补货机器人执行操作补货指令 NeuroGrid predicts replenishment instructions and simultaneously enables the replenishment robot to execute the replenishment operation instructions	缺货率降52%，周转率升37% The out-of-stock rate dropped by 52% and the turnover rate increased by 37%
动态定价 Dynamic pricing	促销效率低下 Low promotion efficiency	AiEinkSmart 0.1秒变价 AiEinkSmart changes price in 0.1 seconds	某超市年客单价提升8% The annual average transaction value of a certain supermarket has increased by 8%
热区优化 Hot zone optimization	空间利用率不足 Insufficient space utilization	PyroglauX匿名热力分析 PyroglauX anonymous thermal analysis	释放2.3㎡广告空间/店 Release 2.3 square meters of advertising space per store
供应链协同 Supply chain collaboration	信息孤岛 Information island	NeuroGrid区块链溯源 NeuroGrid blockchain traceability	产能利用率提升58% The capacity utilization rate has increased by 58%

AIEINKSMART ELECTRONIC PRICE TAG SOLUTION

AiEinkSmart 电子价签解决方案



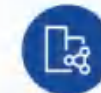
核心优势： 三大核心价值支撑

- **部署门槛低：**采用即插即用模式，预制网络设置无需复杂配置，整体部署流程快速且简单。
- **综合成本低：**体系结构简单，设备投资金额低，后续维护费用少，性价比显著。
- **系统可靠性高：**基于云解决方案构建，搭配成熟的SaaS软件，保障长期稳定运行。



解决方案： 轻量化设计，降低使用成本

- **硬件层面：**简化体系结构，减少不必要的设备投入，从源头降低初期采购成本和后期维护成本。
- **部署层面：**无需专业技术人员，依托预制网络设置实现即插即用，大幅缩短部署周期。
- **软件层面：**搭载多场景适配的SaaS软件，界面友好、操作简单，无需额外培训即可上手。



价格管理： 三大能力提升运营效率

- **实时同步：**支持价格信息实时上传与下发，确保线上线下价格统一，避免信息差。
- **快速调整：**效率极高，5000个标签可在30分钟内完成批量更新，应对促销调价更灵活。
- **智能规划：**提供预加载模板，方便快速创建价格方案；同时支持节日活动预设，可提前规划推广计划，减少临时操作。



Core advantages: Supported by three core values

- **Low deployment threshold:** It adopts a plug-and-play mode, and the prefabricated network setup does not require complex configuration. The overall deployment process is fast and simple.
- **Comprehensive cost advantage:** The system structure is simple, the equipment investment amount is low, the subsequent maintenance cost is small, and the cost performance is remarkable.
- **High system reliability:** Built on cloud solutions and paired with mature SaaS software, it ensures long-term stable operation.



Solution: Lightweight design to reduce usage costs

- **At the hardware level:** Simplify the architecture, reduce unnecessary equipment investment, and lower the initial procurement cost and later maintenance cost from the source.
- **Deployment level:** No professional technical personnel are required. It achieves plug-and-play through prefabricated network settings, significantly shortening the deployment cycle.
- **Software level:** Equipped with SaaS software that is adaptable to multiple scenarios, it features a user-friendly interface and simple operation, allowing users to get started without additional training.



Price Management: Three major capabilities enhance Operational efficiency

- **Real-time synchronization:** Supports real-time upload and distribution of price information to ensure uniform prices both online and offline, avoiding information gaps.
- **Quick adjustment:** Extremely high efficiency, 5,000 tags can be updated in batches within 30 minutes, providing greater flexibility in dealing with promotional price adjustments.
- **Intelligent planning:** Pre-loaded templates are provided to facilitate the quick creation of pricing plans. It also supports the preset of festival activities, allowing for the early planning of promotion plans and reducing temporary operations.

AiEinkSmart 电子价签的多维价值

The multi-dimensional value of AiEinkSmart electronic price tags

成本节约

- 电子价签通过中央控制系统实现全渠道价格同步，单店调价时间从3小时缩至5分钟，年降人工成本42%，同时降低人为失误风险。
- 支持远程批量修改产品参数，将80%员工精力释放至客户服务与货架管理，提升运营效率，减少人工与耗材成本。

Cost savings

- Electronic price tags achieve price synchronization across all channels through a central control system. The price adjustment time for a single store has been reduced from 3 hours to 5 minutes, lowering labor costs by 42% annually and simultaneously reducing the risk of human error.
- Support remote batch modification of product parameters, allowing 80% of employees' energy to be focused on customer service and shelf management, improving operational efficiency and reducing labor and consumable costs.

避免价格错误

- 基于蓝牙技术，价签信息更新准确率99.99%，仅为传统纸质标签错误率的6.8%，规避价格纠纷导致的商誉损失。
- 实时同步库存数据，货架显示与系统库存偏差率从15%降至0.3%，确保数据真实，避免因价格不一致引发客诉或罚款。

Avoid price errors

- Based on Bluetooth technology, the accuracy rate of price tag information update reaches 99.99%, which is only 6.8% of the error rate of traditional paper labels, avoiding the loss of business reputation caused by price disputes.
- Real-time inventory data is synchronized. The deviation rate between the shelf display and the system inventory has been reduced from 15% to 0.3%, ensuring the authenticity of the data and avoiding customer complaints or fines caused by inconsistent prices.

提升运营效率与销售额

- 整合价格管理、促销设置等6大独立流程至统一数字化平台，门店运营响应速度提升3倍。自动生成交易审核日志，满足ISO体系要求，合规审查时间缩短90%；高效的促销管理可增加活动频次，助力销售额提升。

Enhance operational efficiency and sales

- By integrating six independent processes such as price management and promotion Settings into a unified digital platform, the response speed of store operations has been increased by three times.
- Automatically generate transaction review logs to meet ISO system requirements, reducing compliance review time by 90%. Efficient promotion management can increase the frequency of activities and help boost sales.

改善展示与品牌形象

- 超薄电子价签替代纸质标签，单店可释放2.3平方米货架广告空间用于产品展示，每平方米效率提升18%。
- 模块化设计支持快速更换屏幕尺寸，适配生鲜、日化等品类差异化显示需求，优化产品展示效果，提升品牌形象。

Improve the display and brand image

- Ultra-thin electronic price tags replace paper labels. A single store can free up 2.3 square meters of shelf advertising space for product display, increasing efficiency by 18% per square meter.
- The modular design enables quick screen size changes, adapting to the differentiated display requirements of categories such as fresh produce and daily chemicals, optimizing product display effects and enhancing brand image.

A FULL-SCENARIO DIGITAL SOLUTION FOR SMART COMMERCIAL SPACES

智慧商业空间全场景数字化解决方案

在数字化浪潮中，我们提供从前端显示、智能运维到数据分析的一站式解决方案，深度融合AIoT与机器视觉技术，构建高效、洁净、智能的未来商业空间。

In the digital wave, we offer a one-stop solution ranging from front-end display, intelligent operation and maintenance to data analysis, deeply integrating AIoT and machine vision technologies to build efficient, clean and intelligent future commercial spaces.

01 | 智能信息显示与管理层

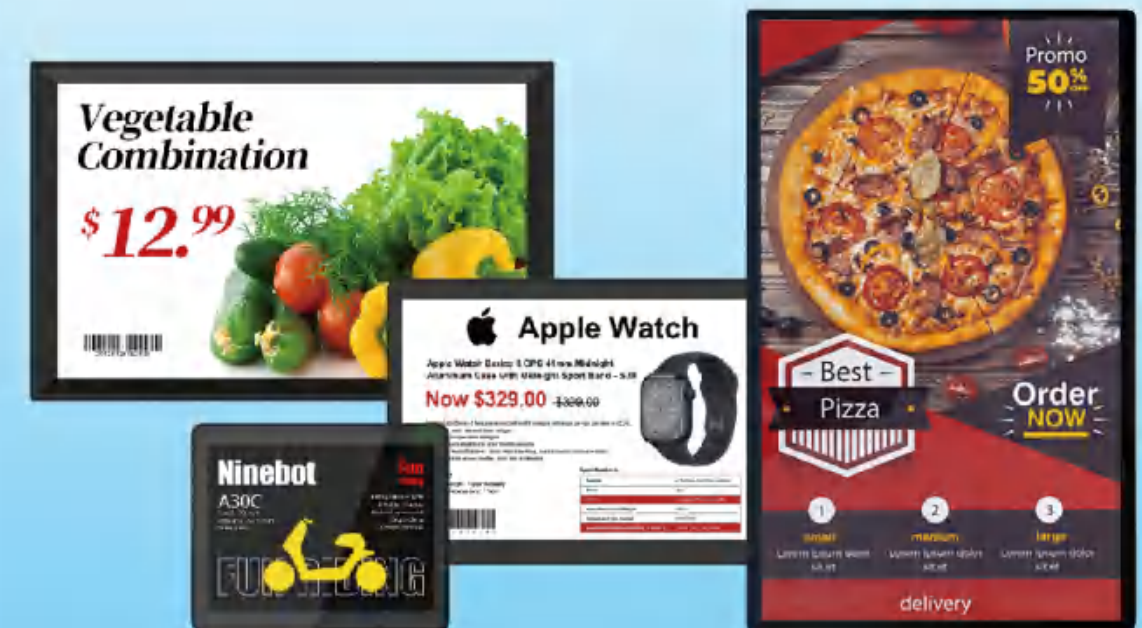
Intelligent information display and management

以全系列电子标签(ESL)为核心，实现商品信息的数字化与实时同步。

Taking the full range of electronic tags (ESL) as the core, the digitalization and real-time synchronization of product information are achieved.

- 多尺寸全场景覆盖：**提供从1.5英寸到13.3英寸的丰富尺寸选择，满足货架、桌牌、室内外等多种应用需求。
- 技术领先：**采用电子墨水屏技术，结合蓝牙5.0通讯，实现超低功耗与7年长效续航。
- 管理革命：**无缝对接零售管理系统，实现价格、促销、库存的集中化管理，驱动零售数字化转型。

- Multi-size full-scene coverage:** Offering a rich selection of sizes from 1.5 inches to 13.3 inches, it meets various application requirements such as shelves, nameplates, indoor and outdoor environments.
- Technological leadership:** Utilizing electronic ink screen technology and combining with Bluetooth 5.0 communication, it achieves ultra-low power consumption and a 7-year long battery life.
- Management Revolution:** Seamless integration with retail management systems to achieve centralized management of prices, promotions, and inventory, driving the digital transformation of retail.



电子标签+智能物联终端

Electronic tags + smart Internet of Things terminals



联动零售管理系统

Linked retail management system

连通零售收银等系统，从信息显示管理、数据管理、分店管理、生产环境管理和资产管理等方面实现传统零售向数字化零售转型。

Connect retail cash register and other systems to achieve the transformation from traditional retail to digital retail in aspects such as information display management, data management, branch store management, production environment management and asset management.

ESL电子标签

ESL electronic tag

- 1.5", 2.3", 2.66", 2.9", 3.5", 4.2", 5.83", 7.3", 7.5", 10.2", 13.3"等多种尺寸电子标签
- 低温、防水、七彩、全彩、双面显示等多种功能电子标签
- LCD屏电子价签

- 1.5", 2.13", 2.66", 2.9", 3.5", 4.2", 5.83", 7.3", 7.5", 10.2", 13.33" and so on the many kinds of electronic label size
- Low-temperature, waterproof, seven-color, full-color, double-sided display and other multi-functional electronic tags
- LCD screen electronic price tag

ESL电子标签产品特点

Features of ESL electronic tag products

- | | | | |
|--|---|---|--|
| <ul style="list-style-type: none"> 电子墨水屏 自定义模板 7年寿命 | <ul style="list-style-type: none"> 多色屏幕 多色LED灯 蓝牙5.0通讯技术 | <ul style="list-style-type: none"> Electronic ink screen Custom template A lifespan of seven years | <ul style="list-style-type: none"> Multi-color screen Multi-color LED lights Bluetooth 5.0 communication technology |
|--|---|---|--|

02 | 智能环境运维层

Intelligent environment operation and maintenance layer

部署AI智慧清洁机器人与具身智能补货机器人，实现从环境维护到商品流转的全程自动化运维。

清洁机器人作为“全感知智能体”，集成激光雷达、深度相机等15种传感器，实现360°感知与精准避障，完成日常清洁与自主运维。自动补货机器人则凭借“零样本商品识别”与“开放场景认知技术”，精准识别超90%SKU，自主完成巡检、拣货与点到点补货，像人一样记忆与工作。

双机系统数据实时同步至AIoT平台，让环境洁净与货架充盈同步实现，共同构建起一个高效、智能、无人化的商业空间运营闭环。

Deploy AI smart cleaning robots and embodied intelligent replenishment robots to achieve fully automated operation and maintenance from environmental maintenance to commodity circulation.

As a "full-perception intelligent agent", the cleaning robot integrates 15 types of sensors such as lidar and depth cameras, achieving 360° perception and precise obstacle avoidance, and completing daily cleaning and autonomous operation and maintenance.

The automatic replenishment robot, relying on "zero-shot product recognition" and "open scene cognition technology", accurately identifies over 90% of SKUs, independently completes inspection, picking and point-to-point replenishment, and works and remembers like a human. The dual-machine system data is synchronized in real time to the AIoT platform, enabling the cleanliness of the environment and the fullness of the shelves to be achieved simultaneously, jointly building an efficient, intelligent and unmanned commercial space operation closed loop.

AI驱动智慧清洁系统

AI-driven smart cleaning system

整机多达15个感知硬件，360°立体融合避障

The entire machine is equipped with as many as 15 sensing hardware components, providing 360° stereoscopic fusion obstacle avoidance

深度相机

智能垃圾识别，智能防跌落

Depth camera

Intelligent garbage recognition, intelligent anti-drop

超声波传感器

智能避障感距

Ultrasonic sensor

Intelligent obstacle avoidance sensing distance

激光雷达

单层建图面积可达10000m²
自我定位，地图实时更新，障碍物感知范围触达30m

Lidar

The single-story construction area can reach up to 10,000 square meters
Self-positioning, real-time map update, obstacle perception range up to 30 meters

线激光传感器

贴边距离可达5cm*，自主脱困，不跌落

Line laser sensor

The edge contact distance can reach up to 5cm*, allowing for independent escape without falling



*注意：机器默认10cm，手动贴边3-5cm。

* Note: The machine defaults to 10cm, and the manual edge should be attached by 3-5cm.



自主路径规划

高精度传感器实时捕获环境状况，自主规划路径，安全避障，灵活通行。

Autonomous path planning

High-precision sensors capture environmental conditions in real time, autonomously plan paths, safely avoid obstacles, and allow for flexible passage.



AIoT智慧物联

自动过闸机，自主乘骑，支持多任务跨区域作业，完成清洁任务后自动返程。

AIoT Smart Internet of Things

Automatic turnstile passage, autonomous hoof riding, support for multi-task cross-regional operations, and automatic return after completing cleaning tasks.



数字化运维

运行数据实时同步到多端后台，支持设备在线升级、远程任务调度，并生成可视化报告。

Digital operation and maintenance

The operation data is synchronized in real time to the multi-terminal background, supporting online equipment upgrade, remote task scheduling, and generating visual reports.

97%

超高水回收率
Ultra-high water recovery rate

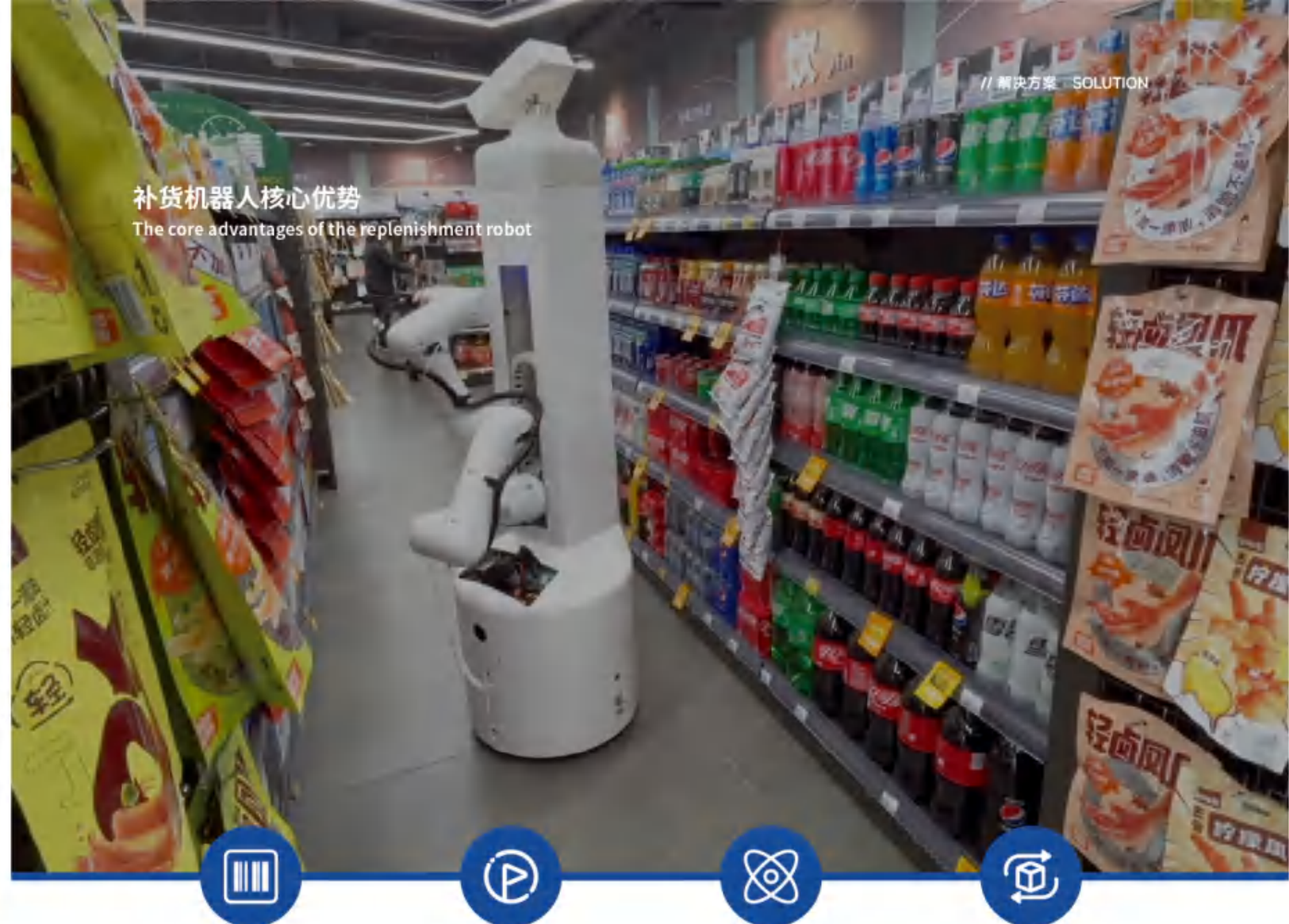
强力去污同时不留水渍 预防二次踩脏和滑倒风险

It powerfully removes dirt without leaving water stains preventing the risk of re-stepping on dirt and slipping



补货机器人核心优势

The core advantages of the replenishment robot



零样本高精度商品识别

无需预先训练，即可精准识别商超内超过90%的SKU，彻底解决长尾商品识别难题，实现大规模应用。

Zero-shot high-precision product recognition

Without pre-training, it can accurately identify over 90% of SKUs in supermarkets, completely solving the problem of long-tail product recognition and achieving large-scale application.

开放场景自主认知与决策

运用“开放场景认知技术”，机器人能像人类一样自主理解环境，完成功能分区认知与智能路径规划，实现高效、准确的点到点自主补货与拣货。

Autonomous cognition and decision-making in open scenarios

By applying "open Scene cognition technology", robots can independently understand the environment like humans, complete functional zoning cognition and intelligent path planning, and achieve efficient and accurate point-to-point autonomous replenishment and picking.

具身智能，像人一样记忆与工作

具备真正的理解、记忆与执行能力，能够持续学习并优化工作流程，从单纯的“执行指令”升级为“自主完成任务”的智能劳动力。

Embodied intelligence, capable of remembering and working like a human

Possessing genuine understanding, memory and execution capabilities, they can continuously learn and optimize work processes, upgrading from merely "executing instructions" to "independently completing tasks" intelligent labor force.

高适应性，赋能全场景未来

其技术架构与能力设计天生适用于餐厅、药店、酒店等高动态复杂场景，具备广阔的商业化前景与无限的场景拓展潜力。

High adaptability, empowering the future of all scenarios

Its technical architecture and capability design are inherently suitable for high-dynamic and complex scenarios such as restaurants, pharmacies, and hotels, and possess broad commercial prospects and unlimited potential for scenario expansion.

03 | 全场景物联与数据分析层

The full-site scene interconnection and data analysis layer

构建以机器视觉与无线通信技术为骨干的智慧物联网。

精准客流分析:通过人员计数网络摄像机,精准统计进出客流,准确率超98%,为运营决策提供数据支撑。

全链路数字化:基于2.4G/5G无线通信技术,整合智能网关、识别设备与ESL系统,打通信息流,构建从门店到总部的全场景数字孪生。

开放与灵活:支持丰富的API接口与定制化协议,轻松对接现有系统,适应未来业务扩展。

Build a smart Internet of Things network with machine vision and wireless communication technologies as the backbone.

Precise passenger flow analysis: Through personnel counting network cameras, the inbound and outbound passenger flows are accurately counted with an accuracy rate exceeding 98%, providing data support for operational decisions.

Full-chain digitalization: Based on 2.4G/5G wireless communication technology, integrate intelligent gateways, identification devices and ESL systems, connect information flow, and build a full-scene digital twin from stores to headquarters.

Openness and flexibility: Supports rich API interfaces and customized protocols, easily integrating with existing systems and adapting to future business expansion.

机器视觉 + 智慧城市3D人员计数网络摄像机

Machine vision + 3D personnel Counting network camera for smart cities

应用场景:连锁店、商业中心、文旅景区、展览馆、机场、办公楼宇

核心功能:精准人流量统计设备,对进出封闭区域空间的人数进行自动实时统计,支持视频事后追溯

产品亮点:

- 98%以上统计准确率:灵活调整高度,准确过滤儿童及其他大型物体,不受人潮拥挤的影响;
- H机多用:支持分别统计进、出店客流;
- 输出数据精确到秒:可提供精确到秒的客流数据,支持历史数据查询;
- 多平台远程管理:总部、门店可实时获取数据,按天、月、季查询;
- 不受环境光影响:阳光强烈的场景;灯光场景;黑暗场景;
- 灵活的接口支持:可支持开放丰富的应用接口;
- 强大的环境适应力:适合安装在各种材质/颜色的地面与墙体场景,以及四周有墙/摆放物体等场景;
- 既是计数器也是网络摄像机:支持离线存储,断网续传;
- Wi-Fi便携连接:无需另外布线,可直接连接现有Wi-Fi;

协议可定制:数据协议可根据需求灵活定制;

质量可靠:欧盟CE、POCE认证;防腐级别C3,防护等级IP44(可选配更高等级)。

Application scenarios: Chain stores, commercial centers, cultural and tourism scenic spots, exhibition halls, airports, office buildings.

Core functions: Precise crowd flow statistics device, automatically and in real time counts the number of people entering and leaving the enclosed area space, and supports video post-event traceability.

Product highlights:

- Over 98% statistical accuracy rate: Flexible height adjustment, accurate filtering of children and other large objects, not affected by crowded people.
- H machine multi-purpose: Supports separate statistics of inbound and outbound customer flow.
- Output data accurate to the second: It can provide passenger flow data accurate to the second and support historical data query.
- Multi-platform remote management: Headquarters and stores can obtain data in real time and query it by day, month and quarter.
- Not affected by ambient light: Scenes with intense sunlight. Lighting scene; Dark scene.
- Flexible interface support: It can support open and rich application interfaces.
- Strong environmental adaptability: Suitable for installation in various ground and wall scenarios made of different materials/colors, as well as in scenarios where there are walls around or objects are placed.
- It serves as both a counter and a network camera: supports offline storage and resumption of transmission after network disconnection.
- Wi-Fi portable connection: No additional wiring is required; it can be directly connected to the existing Wi-Fi.

Customizable protocols: Data protocols can be flexibly customized according to requirements.

Reliable quality: EU CE and POCE certifications; Anti-corrosion grade: C3, protection grade: IP44 (higher grades are optional).

方案基于2.4G无线通讯技术,以攀攀科技价签管理系统为核心,同时集成了智能价签、智能网关、智能识别等设备,帮助零售商构建全场景数字化门店。

The solution is based on 2.4G wireless communication technology, with the Xiaofei intelligent price tag management system at its core. It also integrates intelligent price tags, intelligent gateways, intelligent recognition and other devices, helping retailers build full-scenario digital stores.

PanpanTech 解决方案:赋能商业未来

PanpanTech Solutions: Empowering the Future of Business

我们的解决方案不再是单点技术的堆砌,而是一个有机协同的生态系统:

降本增效:自动化信息更新与清洁运维,直接降低人力与运营成本。

体验升级:为顾客提供价格透明、环境洁净、服务智能的全新体验。

决策科学:基于真实的客流与运维数据,驱动从营销策略到门店管理的科学决策。

数字化转型:为企业提供从硬件到软件、从数据到洞察的完整数字化路径,构筑长期竞争力

Our solution is no longer a pile of single-point technologies, but an organically coordinated ecosystem:

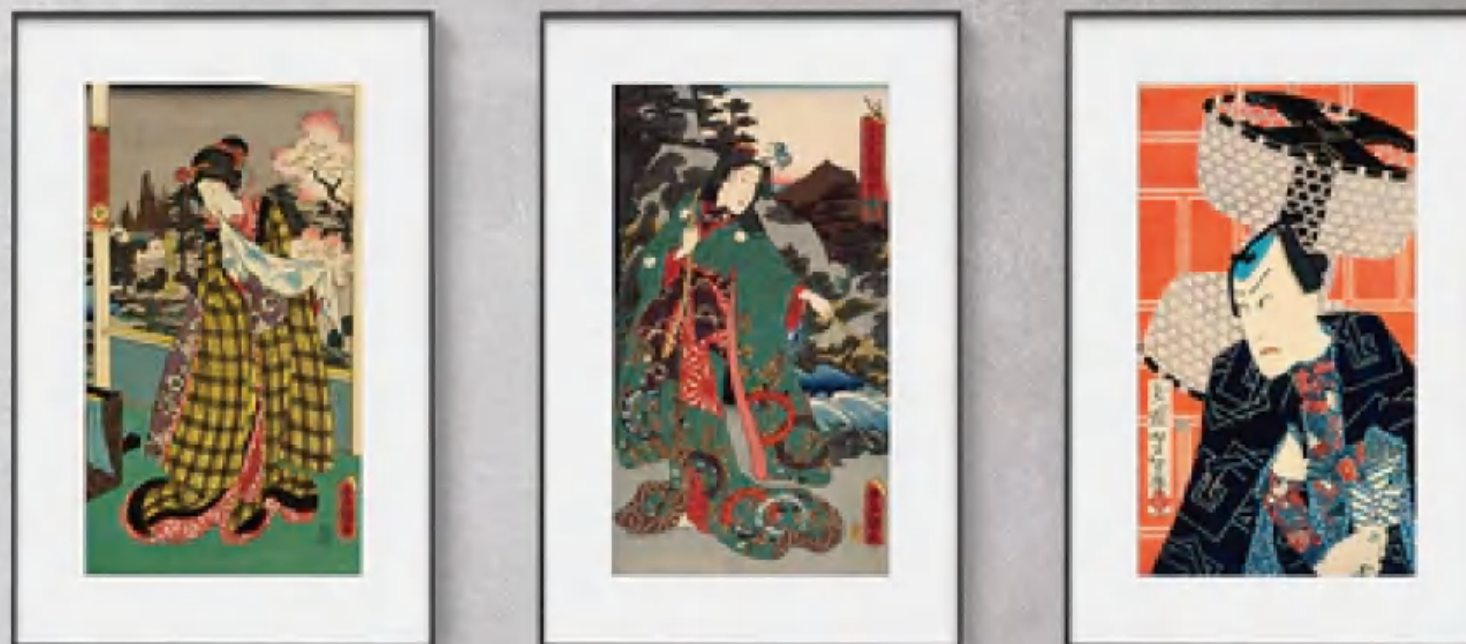
Cost reduction and efficiency improvement: Automated information update and cleaning operation and maintenance directly lower labor and operational costs.

Experience Upgrade: Provide customers with a brand-new experience featuring transparent pricing, clean environment and intelligent service.

Decision Science: Based on real customer flow and operation and maintenance data, it drives scientific decision-making from marketing strategies to store management.

Digital transformation: Provide enterprises with a complete digital path from hardware to software, from data to insights, and build long-term competitiveness.





04 | AiEinkSmart艺术画框——数字时代的“空间记忆”

AiEinkSmart Art Frame - "Spatial Memory" in the Digital Age



类纸显示

E-Ink电子墨水技术, 无光污染, 还原真纸质感

Paper-like display

E-Ink electronic ink technology offers no light pollution and recreates the texture of real paper.



超长续航

静态显示零功耗, 无线部署, 随挂随用

Extremely long battery life

Static display with zero power consumption, wireless deployment, ready for use upon installation.

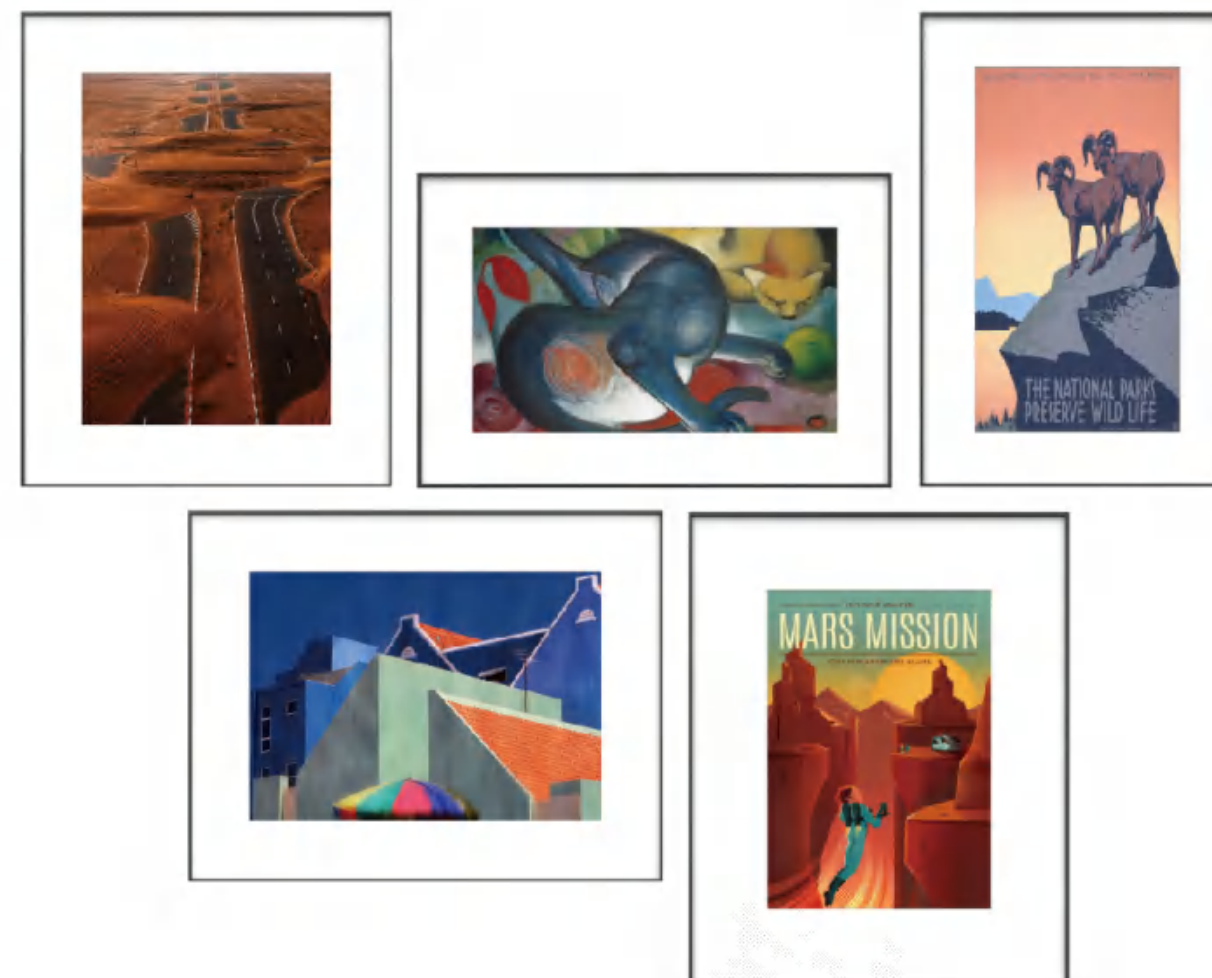


应用场景

商业空间装饰、品牌文化展示、高端VIP室

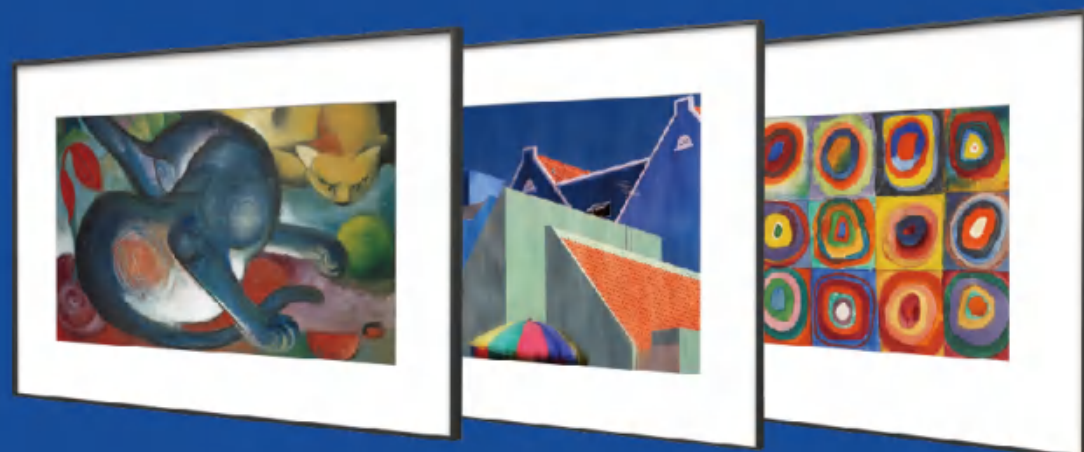
Application scenario

Commercial space decoration, brand culture display, high-end VIP room.



不只是画框 更是智能内容服务平台

Not only the frame, but also an intelligent
content service platform



AI策展

内置AI Agent, 根据环境、时间、人群自动调整展示内容

AI curation

Built-in AI Agent, which automatically adjusts the display content according to the environment, time and crowd.



云端分发

统一内容管理平台, 一键分发全球门店, 支持版权管理与即时更新

Cloud distribution

Unified content management platform, one-click distribution to global stores, supports copyright management and real-time updates.



商业模式

硬件一次性投入+内容/软件持续订阅

Business Model

One-time investment in hardware + continuous subscription of content/software.



让数字内容, 像艺术品一样被长期展示
让软件与算法, 像基础设施一样持续创造价值

Let digital content be displayed for a long time like works of art.
Let software and algorithms continuously create value like infrastructure.



SUCCESS STORY

成功案例



全球覆盖范围

我们的电子货架标签解决方案已在全球30多个国家和地区，成功应用于6000多家门店，包括欧洲、北美和亚洲的主要零售市场。

Global coverage

Our electronic shelf label solutions have been successfully applied in over 6,000 stores in more than 30 countries and regions around the world, including major retail markets in Europe, North America and Asia.

6000 +

成功应用于6000多家门店
It has been successfully applied in over 6,000 stores

行业基准

我们为许多财富500强零售商提供定制的解决方案，帮助他们实现智能运营，改善品牌形象和客户满意度，并成为行业基准案例。

Industry benchmark

We provide customized solutions for many Fortune 500 retailers, helping them achieve intelligent operations, improve brand image and customer satisfaction, and become benchmark cases in the industry.

500

500强零售商提供定制的解决方案
Fortune 500 retailers offer customized solutions

高效转换

通过与我司合作，某大型连锁超市仅用三个月时间就在1000家门店完成电子货架标签的部署，显著降低了运营成本，提升了促销效率。

Efficient conversion

Through cooperation with our company, a large chain supermarket completed the deployment of electronic shelf labels in 1,000 stores within just three months, significantly reducing operating costs and enhancing promotional efficiency.

1000

仅用三个月时间在1000家门店完成电子货架标签的部署
It only took three months to deploy electronic shelf labels in 1,000 stores



SERVICES AND SUPPORT

服务和支持



定制开发

- 全流程定制：从需求分析到方案设计，提供与客户业务高度匹配的定制服务。
- 全方位技术支持：覆盖系统部署与功能调试，助力客户快速启动并高效使用系统。
- 持续性优化：定期收集客户反馈，持续迭代方案，适配业务变化并保持技术领先。

Customized development

- **Full-process customization:** From requirement analysis to solution design, we provide customized services that are highly matched with the customer's business.
- **Comprehensive technical support:** Covering system deployment and functional debugging, helping customers quickly start up and efficiently use the system.
- **Continuous optimization:** Regularly collect customer feedback, continuously iterate solutions, adapt to business changes and maintain technological leadership.



专业咨询

- 需求评估：识别客户业务痛点与优化方向，制定科学的项目实施计划。
- 行业洞察：依托多年经验，提供零售行业最新趋势与最佳实践，帮助客户保持竞争优势。
- 成本分析：输出详细成本报告，评估投资回报率，保障项目经济与实施可行性。
- 培训服务：为客户定制专属课程，内容涵盖系统操作、维护与管理，确保客户团队能熟练运用系统。

Professional consultation

- **Demand assessment:** Identify the pain points and optimization directions of the client's business, and formulate a scientific project implementation plan.
- **Industry Insights:** Relying on years of experience, we provide the latest trends and best practices in the retail industry to help clients maintain a competitive edge.
- **Cost analysis:** Output a detailed cost report, assess the return on investment, and ensure the economic and implementation feasibility of the project.
- **Training services:** Customize exclusive courses for clients, covering system operation, maintenance and management, to ensure that the client team can skillfully use the system.



售后服务

- 快速响应：7×24小时售后待命，客户遇问题可即时获取技术支持，缩短业务中断时间。
- 定期维护：技术团队定期提供系统维护，含设备检查、软件升级与性能优化，保障系统长期稳定。
- 客户反馈：搭建完整反馈机制，定期收集意见建议，持续优化服务，提升客户满意度与忠诚度。

After-sales service

- **Rapid response:** 7×24-hour after-sales service on standby. Customers can obtain technical support immediately when encountering problems, reducing business interruption time.
- **Regular maintenance:** The technical team provides regular system maintenance, including equipment inspection, software upgrade and performance optimization, to ensure the long-term stability of the system.
- **Customer feedback:** Establish a complete feedback mechanism, regularly collect opinions and suggestions, continuously optimize services, and enhance customer satisfaction and loyalty.