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IoT System Overview

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POWER AND MAX INTEGRATION TECHNOLOGY

CONTENTS

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POWER TECHNOLOGY AND MAX INTEGRATION

01

About POWERMAX

About POWERMAX

Company Name: Shanghai POWERMAX Technology, Inc.

Registered Address: Pudong Software Park, Zhangjiang Hi-Tech Park, Shanghai, China

Registration Time: October 2002

Registered Capital: RMB 76.93 million

Business Address: 5/F, Building 12A, No. 88 Pujiang Xinjunhuan Road, Minhang District, Shanghai (Caohejing Pujiang Software Park)

Company Type: Limited Liability Company

Parent Company: Routon Electronic Co., Ltd.

Business Scope: Research, development, production, and sales of embedded software, power electronics, motors and control systems, and mechatronics system products, along with their application software; import and export of goods and technology.

About Routon Electronic

Routon Electronic (Parent Company)
Stock Code: SH.600355

- National Key High-Tech Enterprise
- Listed on the Main Board in 2002
- National Postdoctoral Research Station

- Annual Production Capacity: 5 million units (sets)
- Certified under ISO 9001, ISO 14001, and other management systems
- Equipped with over 1,000 internationally advanced production and testing devices

Qualifications

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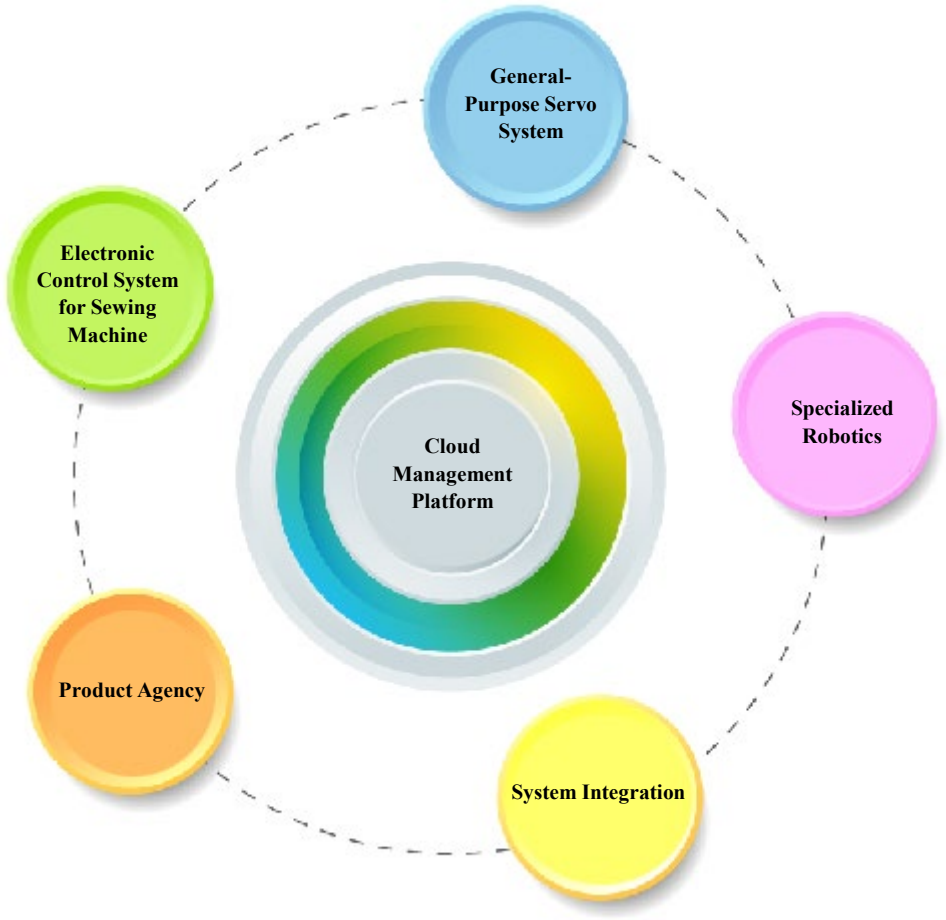
- Shanghai Science and Technology "Little Giant" Enterprise
- National Standardization Demonstration Enterprise in the Standardization Demonstration Zone
- Top 100 Science and Technology Enterprises in China's Light Industry
- Top 50 Enterprises in China's Light Industry Equipment Manufacturing
- Leading Enterprise in China's Sewing Machinery Industry
- Top 10 Enterprise in China's Sewing Machinery Industry
- Vice Chairman Unit of the China Sewing Machinery Association (CSMA)
- Recognized as an Advanced Member at the 40th Anniversary Conference of the CSMA
- Shanghai High-Tech Enterprise; Shanghai Innovative Enterprise
- Shanghai Famous Brand Product Enterprise
- Shanghai Patent Development & Cultivation Enterprise
- Excellent Brand in Shanghai Light Industry
- Enterprise Technology R&D Institution in Pudong New Area
- Member of the China Intelligent Sewing Factory Technology Service Alliance
- Recognized as one of the "Top 10 Famous Brands of Auxiliary Devices Preferred by Users" by Saier Media
- Awarded at the 3rd (Bright International Cup) Shanghai Light Industry Famous Brand (Product) Selection
- Honorary Title of "Shanghai Light Industry Craftsman"; Shanghai Light Industry Excellent Designer Award

Development Milestones

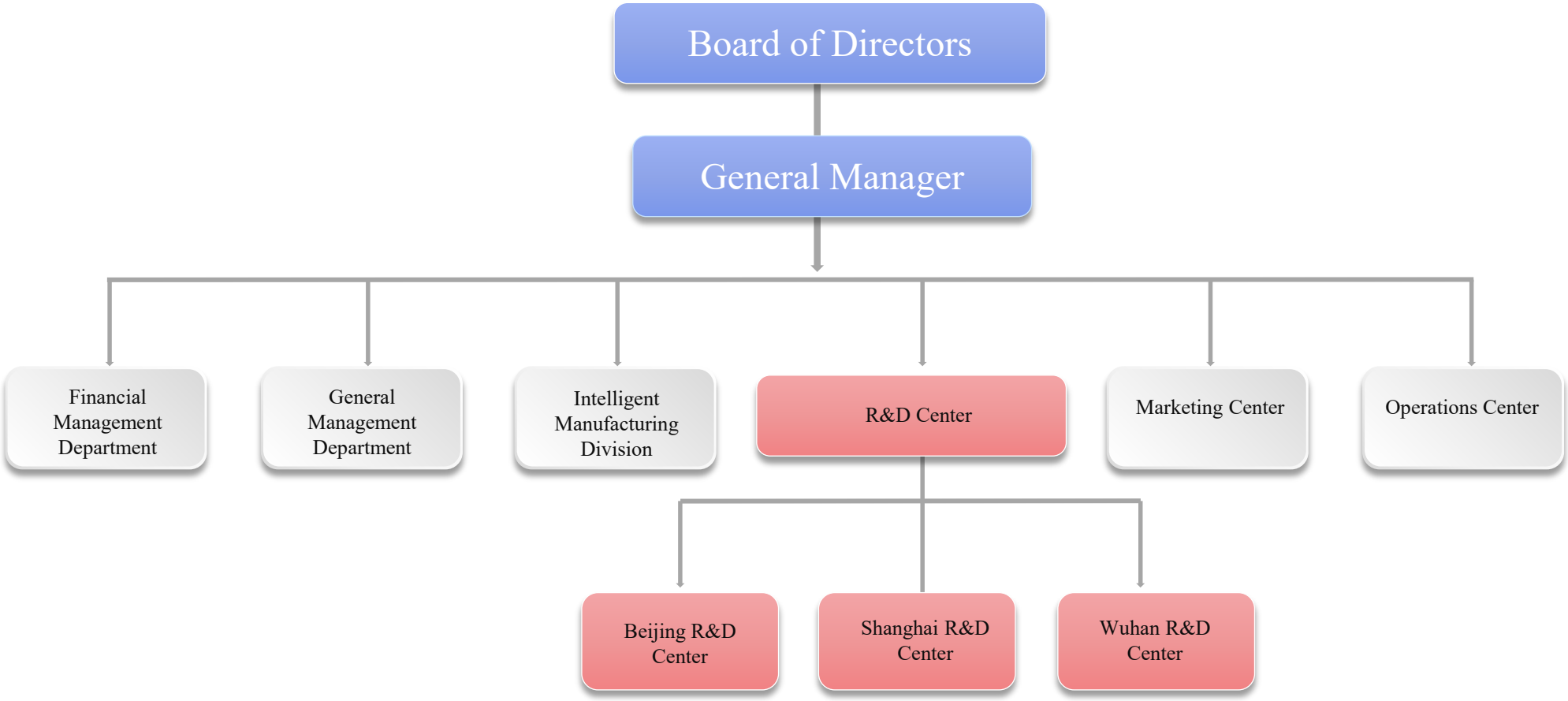
2002	POWERMAX was founded in Shanghai Zhangjiang Hi-Tech Park.
2003	Launched the first-generation product HandiI-AH40 at CISMA 2003.
2007	Appointed as the Director Unit of the China Sewing Machinery Association's Electronic & Control Committee.
2008	Recognized as a National High-Tech Enterprise.
2011	Led a key project under China's Ministry of Science and Technology's Science & Technology Support Program: R&D of a servo control system for energy-efficient sewing equipment.
2012	Recognized as a Leading Industrial Enterprise in the "Electronic & Control" sector of the sewing machinery industry.
2015	Certified as an "SRDI (specialized, refinement, differential, innovation) Enterprise".
2018	Ranked among the Top 100 Enterprises in China's Light Industry and the Top 10 Enterprises in China's Sewing Machinery Industry.
2019	Awarded the title of Shanghai "Science & Technology Little Giant" and recognized as the China Light Industry CNC Engineering Technology Research Center.
2023	POWERMAX Intelligent CNC System honored as a "Shanghai Light Industry Famous Brand (Product) ".
2024	Received multiple industry accolades, including the Advanced Member Award at the 40th Anniversary of the China Sewing Machinery Association; honorary title of "Shanghai Light Industry Craftsman"; Shanghai Light Industry Excellent Designer Award.

Business Scope

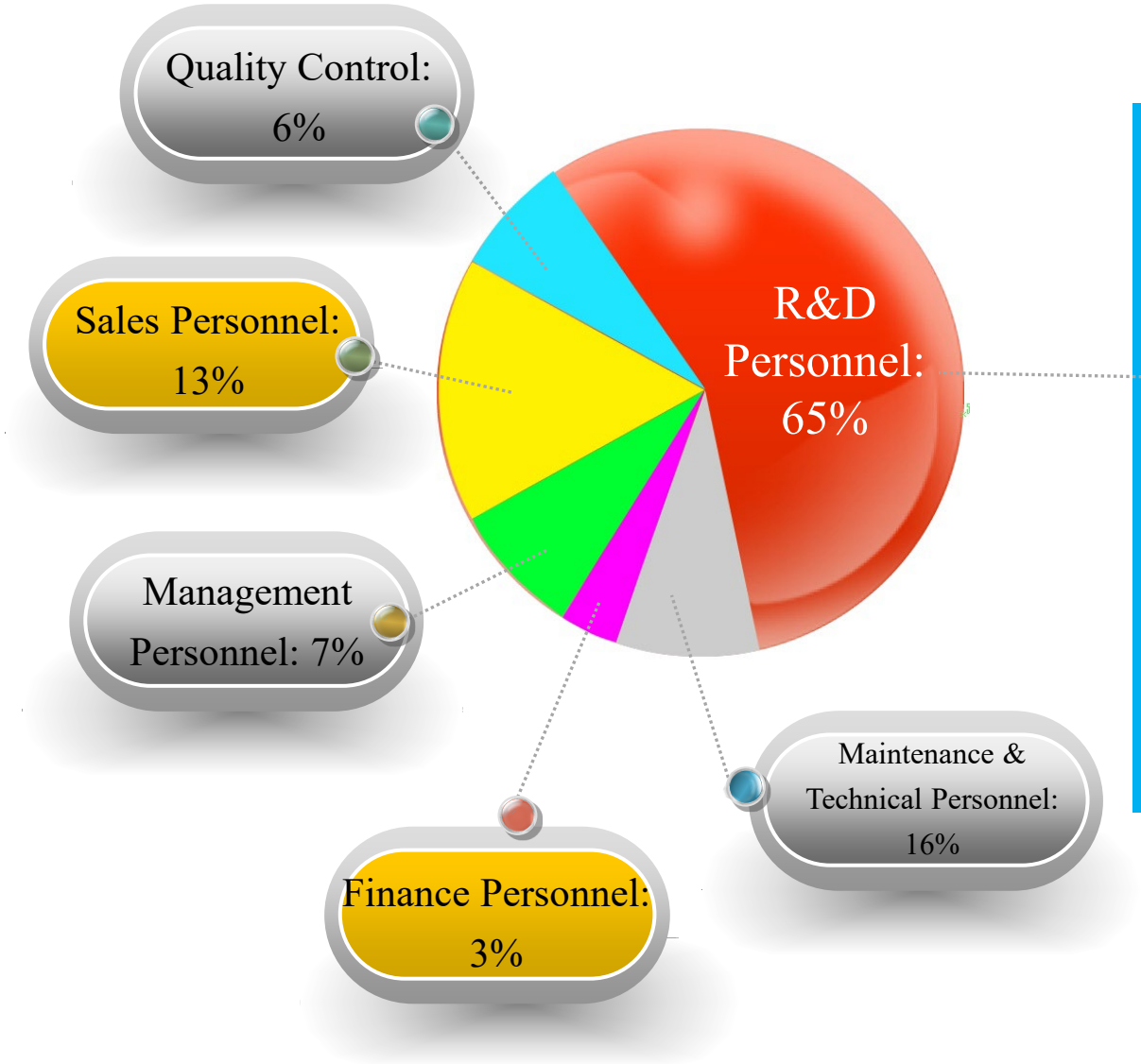


POWERMAX adheres to the development strategy of "Professionalism, Innovation, Collaboration, and Win-Win", leveraging advanced servo drive technology, motion control technology, and power electronics to deliver intelligent, industry-specific solutions.

Organizational Structure



R&D Team Building



Total R&D Staff: 56

Including 10 PhD and master's degree holders and 25 bachelor's degree holders

Specialized Technology Areas

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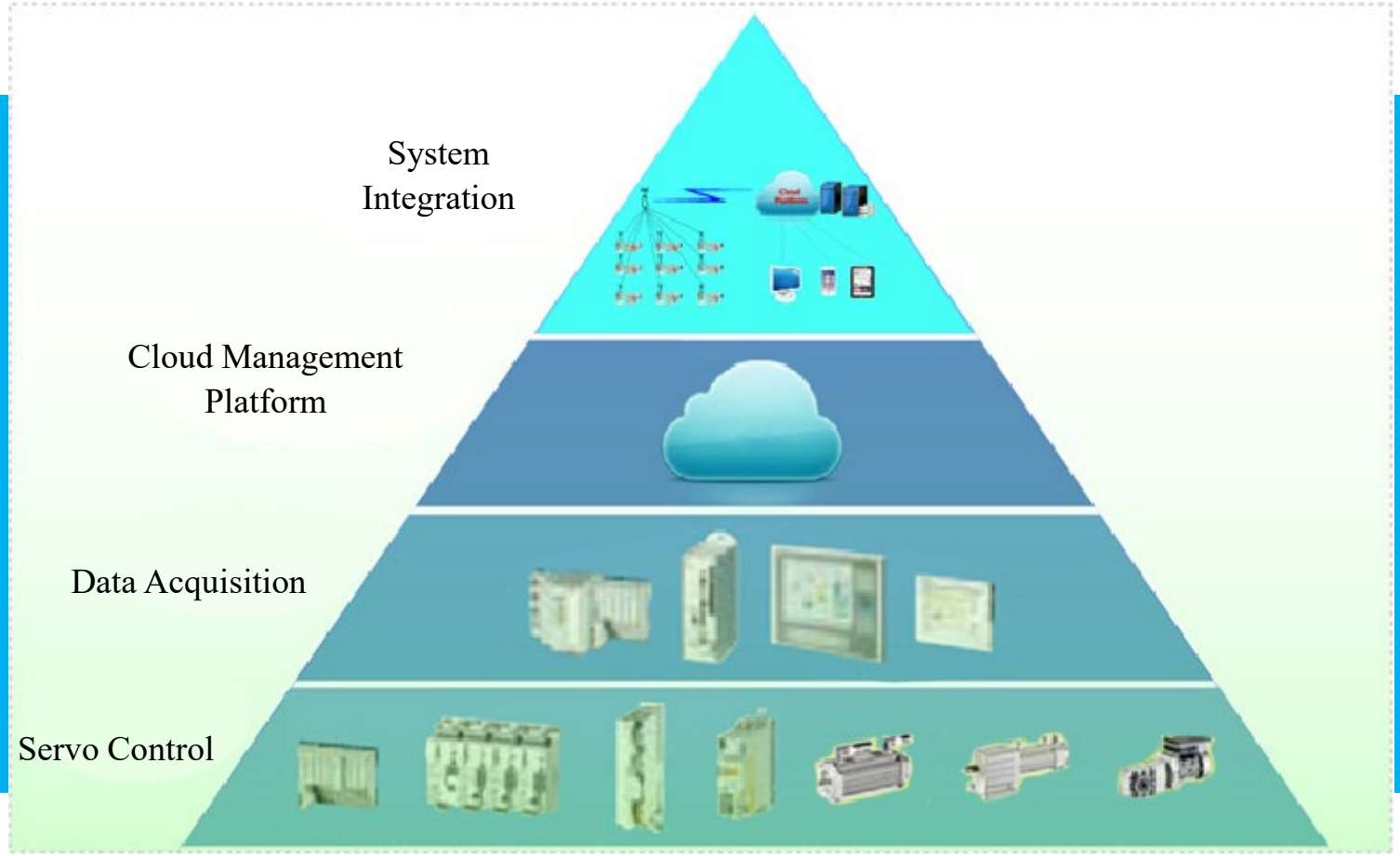

Corporate Achievements

Technical Achievement Award

- National-level Certificates: 2
- Provincial and Ministerial-level Certificates: 6
- Shanghai Municipal-level Certificates: 7

Participation in Standards Development

- National Standards: 7
- Industry Standards: 25

Intellectual Property Development

- Granted and Valid Patents: 160
- Invention Patents: 21
- National Patent Excellence Awards: 2

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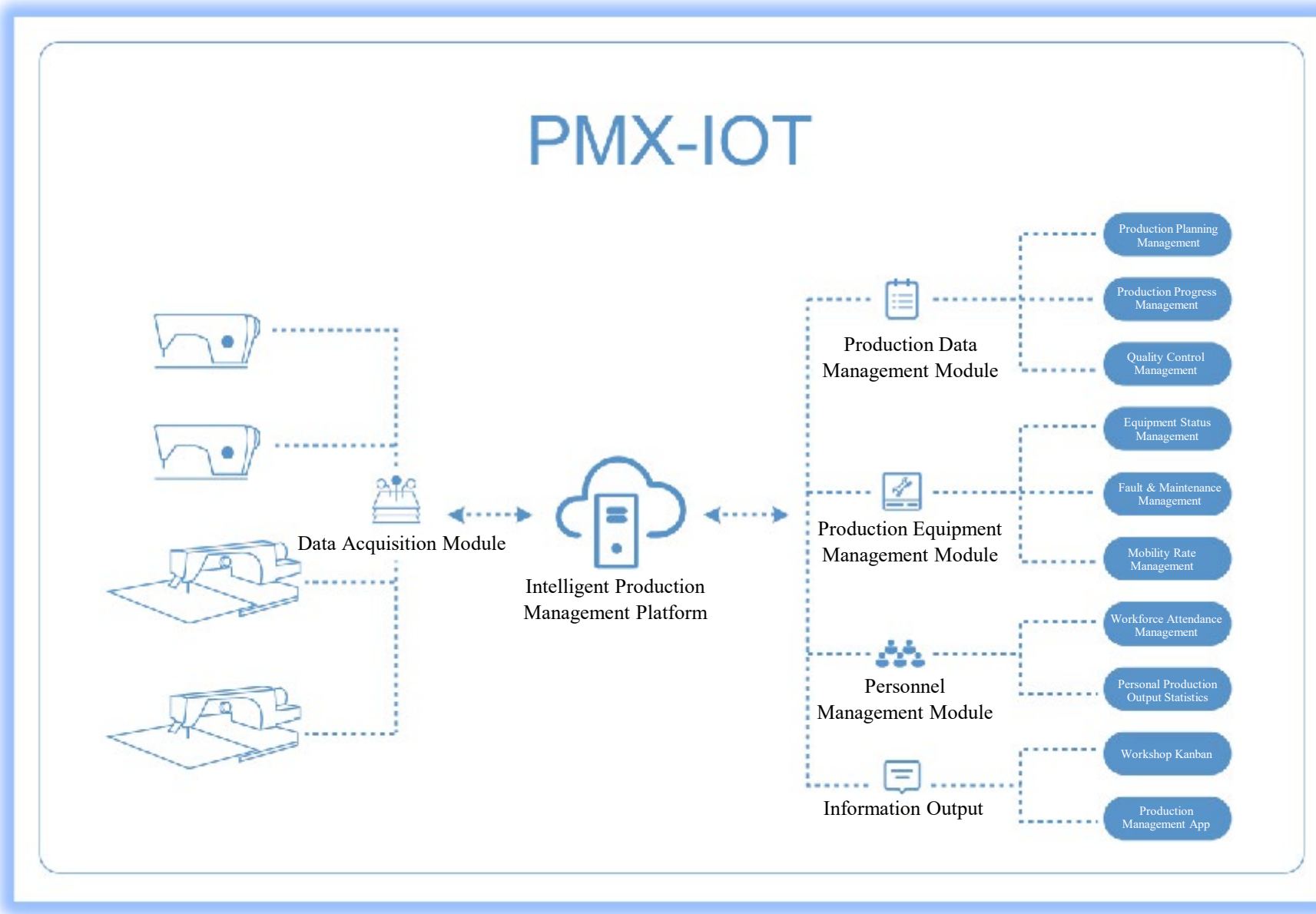
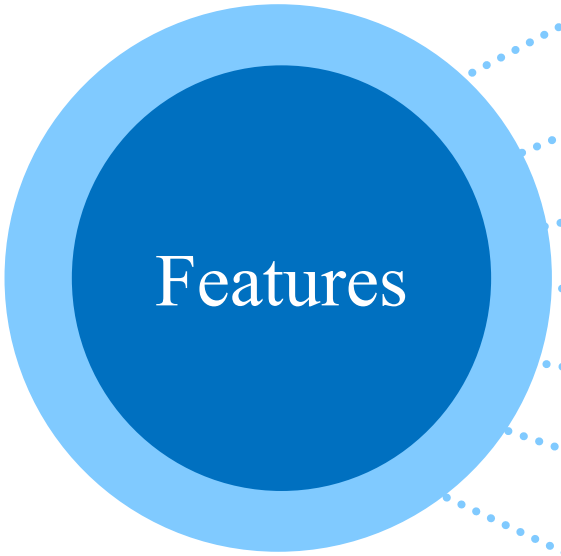
02

IoT System Solution

About IoT


PMX-IOT
Data Acquisition Module
Intelligent Production Management Platform
Production Data Management Module
Production Planning Management
Production Progress Management
Quality Control Management
Production Equipment Management Module
Equipment Status Management
Fault & Maintenance Management
Mobility Rate Management
Personnel Management Module
Workforce Attendance Management
Personal Production Output Statistics
Information Output
Workshop Kanban
Production Management App

IoT System Features



- Real-time acquisition & instant reporting of production data.
- High-reliability database ensures permanent data preservation, enabling retrospective analysis and statistical insights.
- Granular production tracking, providing detailed visibility from order-level progress down to individual color sub-orders, production lines, employees, and process stages.
- Real-time logging and reporting of production quality issues with configurable threshold-based proactive alerts.
- Real-time tracking of machine conditions, supporting equipment call functions and maintenance management.
- Supports multiple output formats, including web-based dashboards, workshop Kanban displays, a dedicated production management app, and WeChat mini-programs.
- Message subscription – AI-driven big data analysis triggers proactive alerts via the app or WeChat mini-program for production anomalies.

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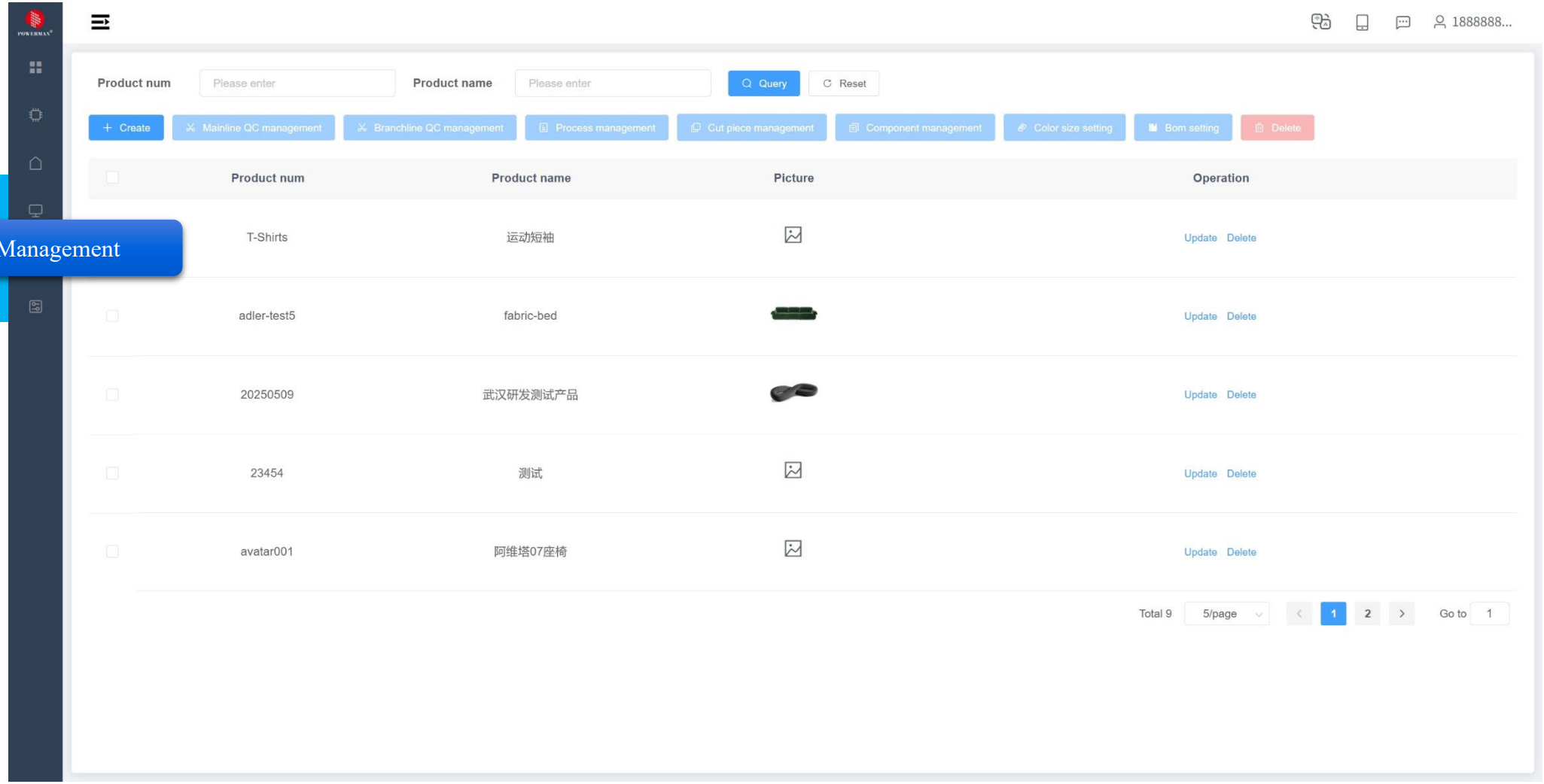
IoT System Function Demo

1. Production Data Management

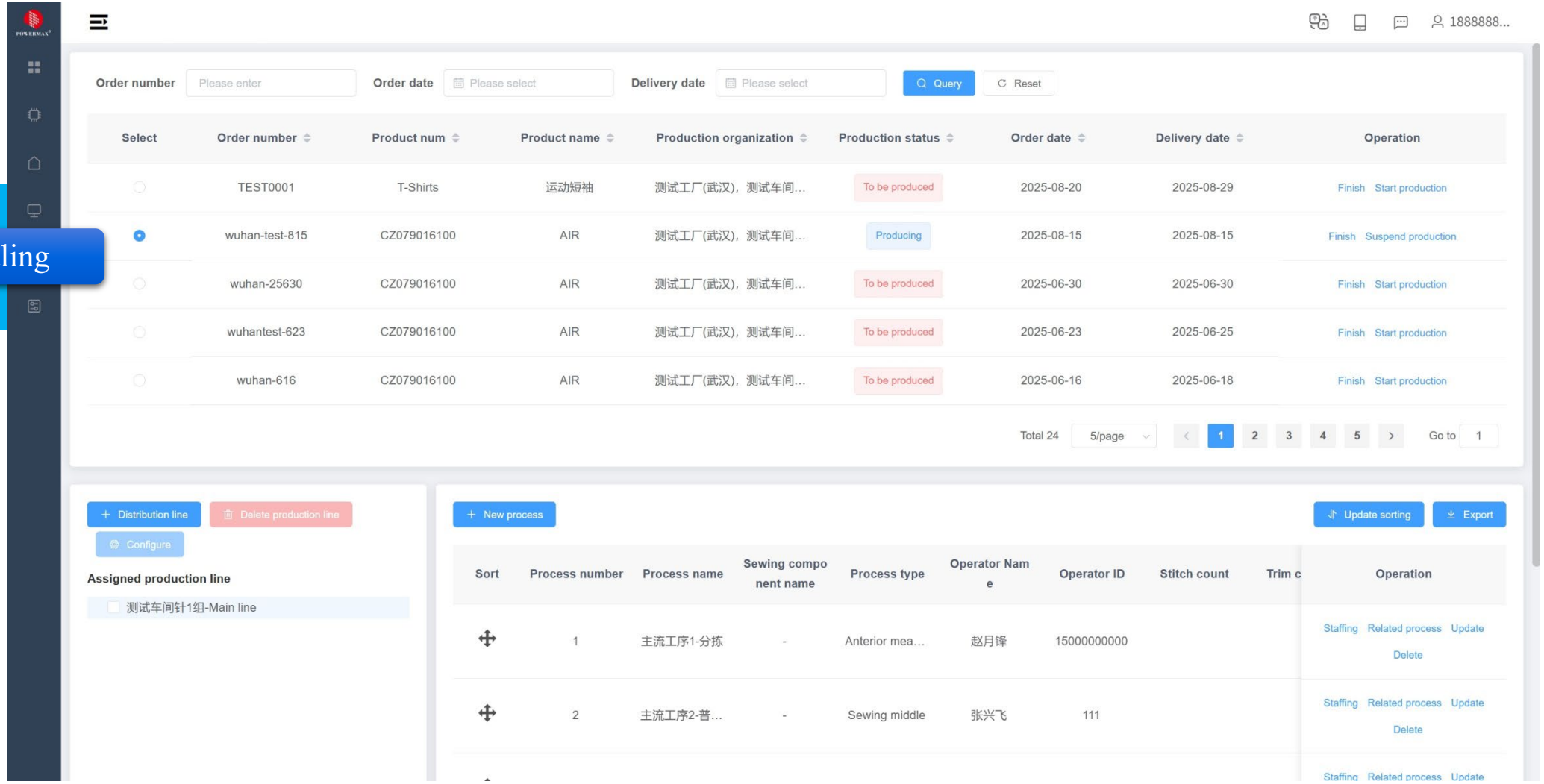
IoT System Function Demo: Product Management

Product Management



IoT System Function Demo: Order Scheduling

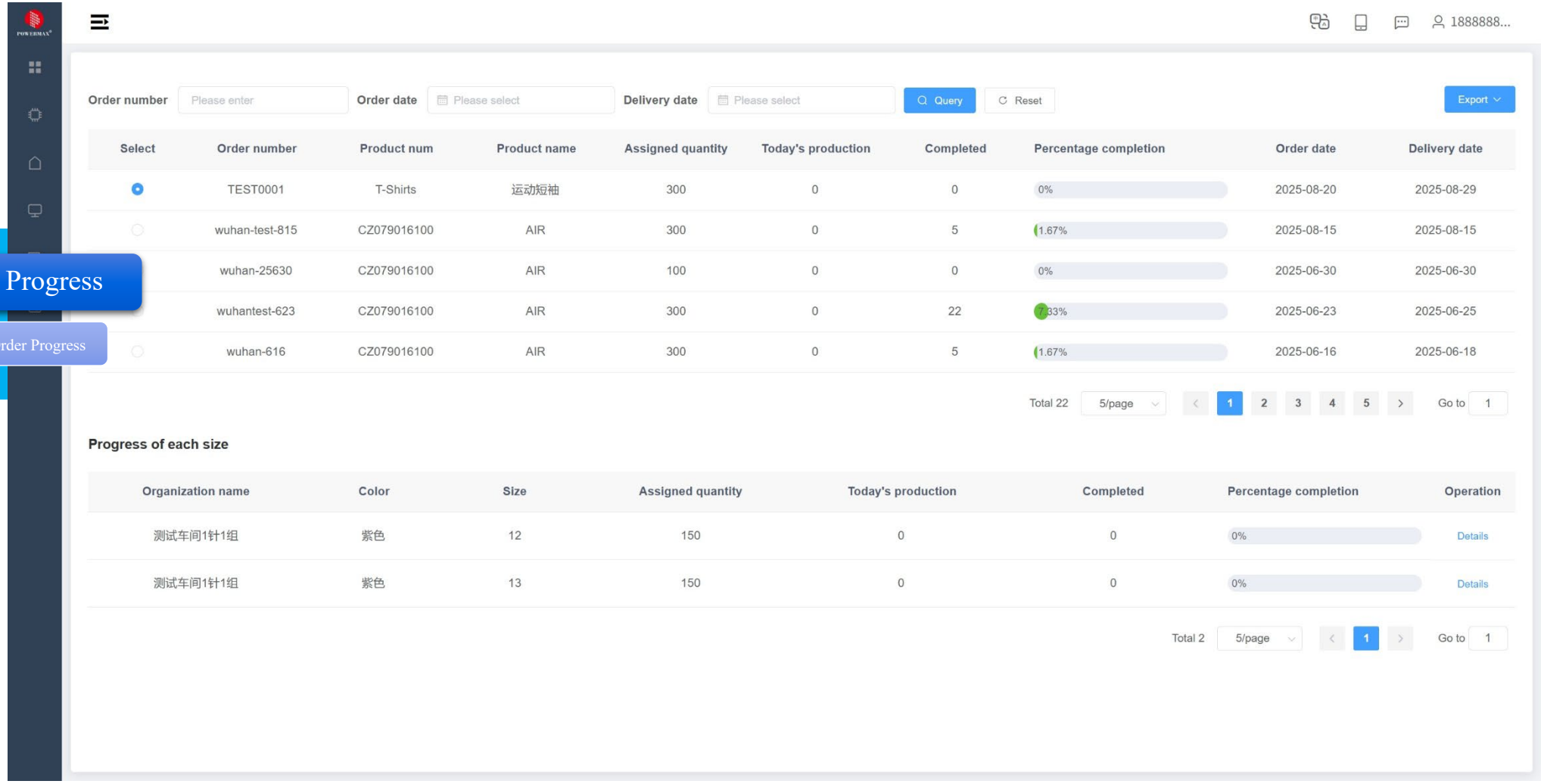
Order Scheduling



IoT System Function Demo: Production Progress (Manufacturing order progress across different departments, colors, and sizes)

Production Progress

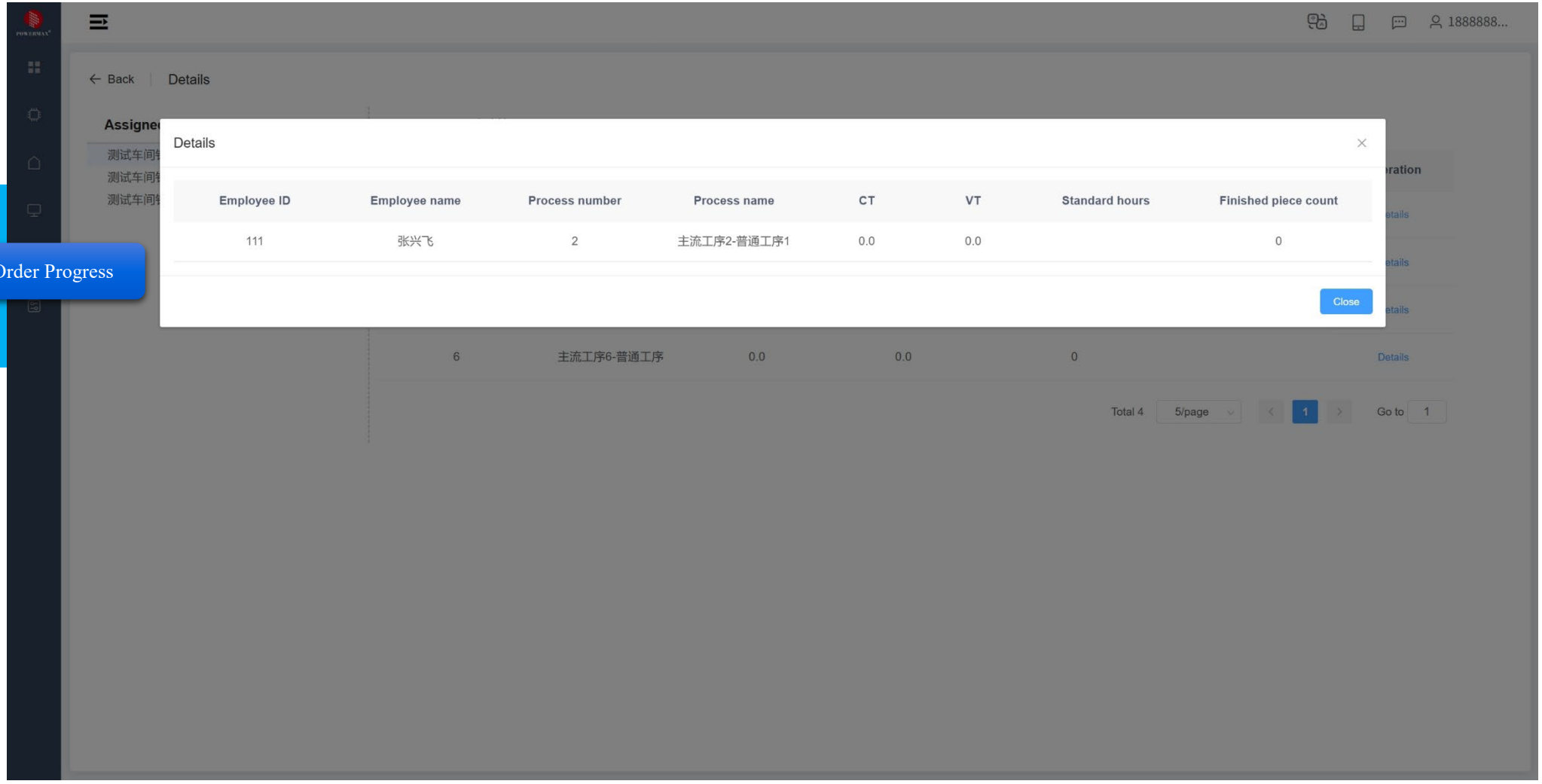
Manufacturing Order Progress



IoT System Function Demo: Detailed Progress

(Granular tracking at the production line and process level for each size)

Manufacturing Order Progress



IoT System Function Demo: Capacity Record Tracking

(Real-time monitoring of each product's processing stages)

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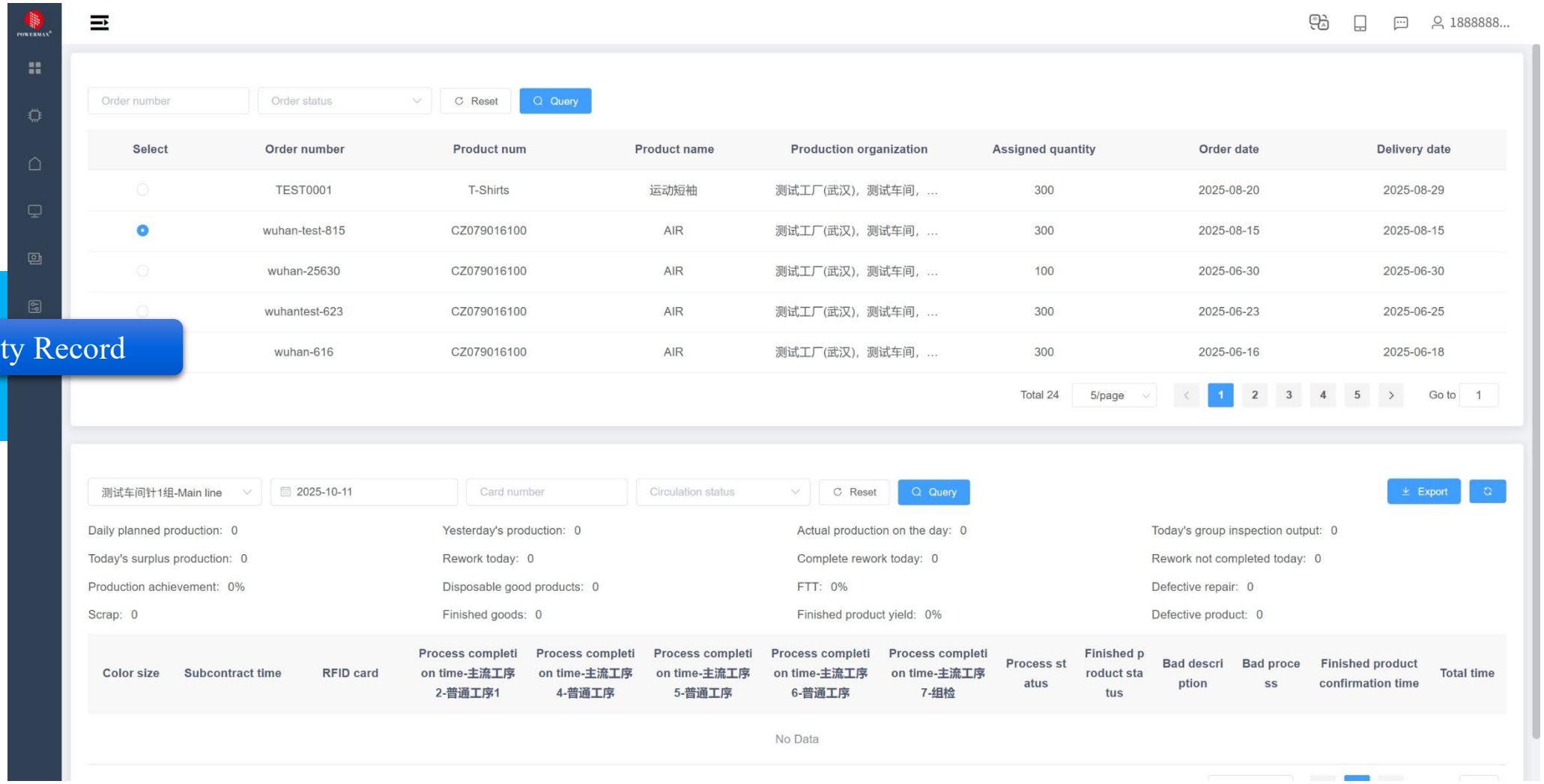
Capacity Record



IoT System Function Demo: Quality Statistics

(Comprehensive reporting on quality issues categorized by order, color, and size)

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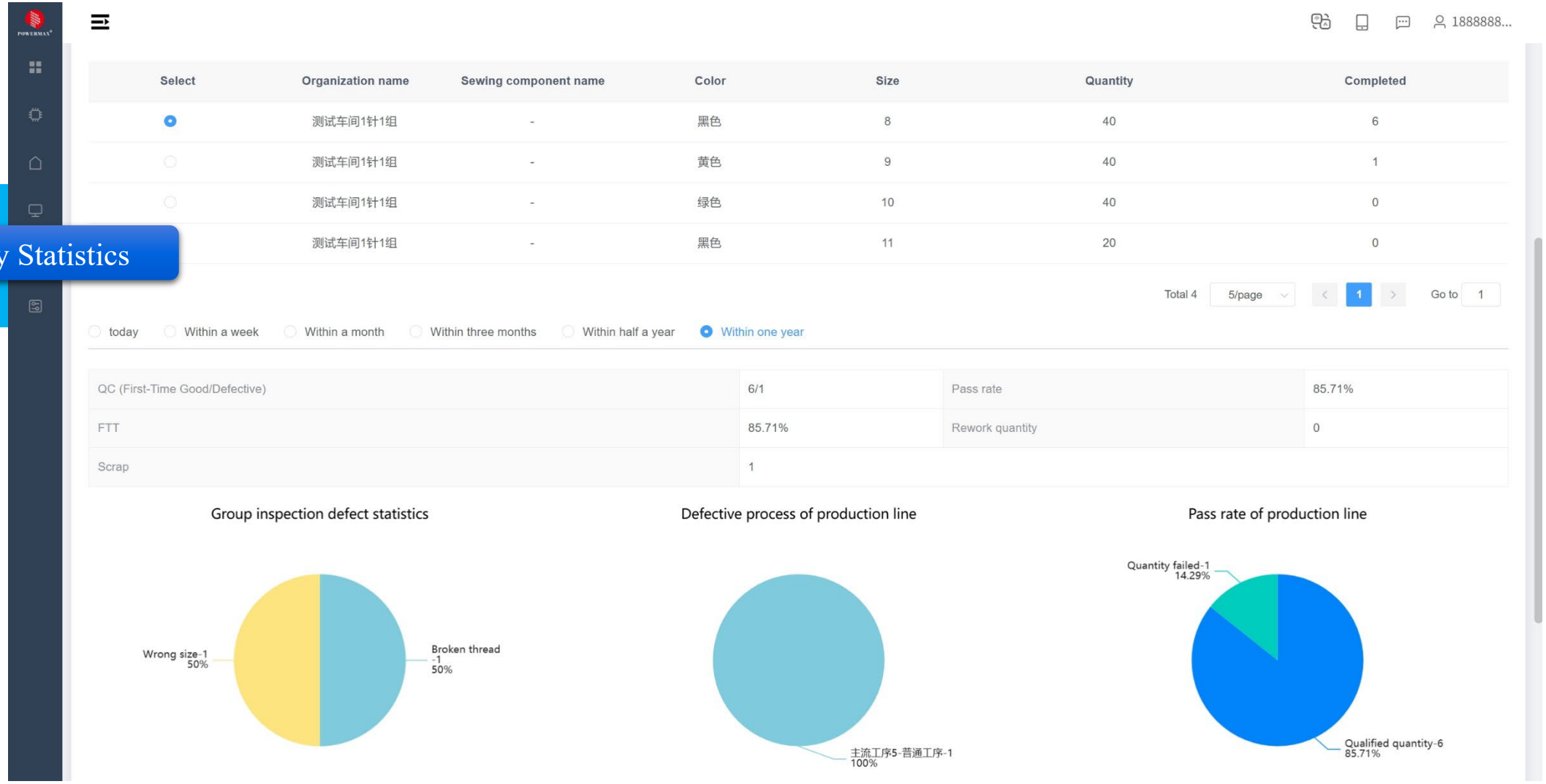
Quality Statistics



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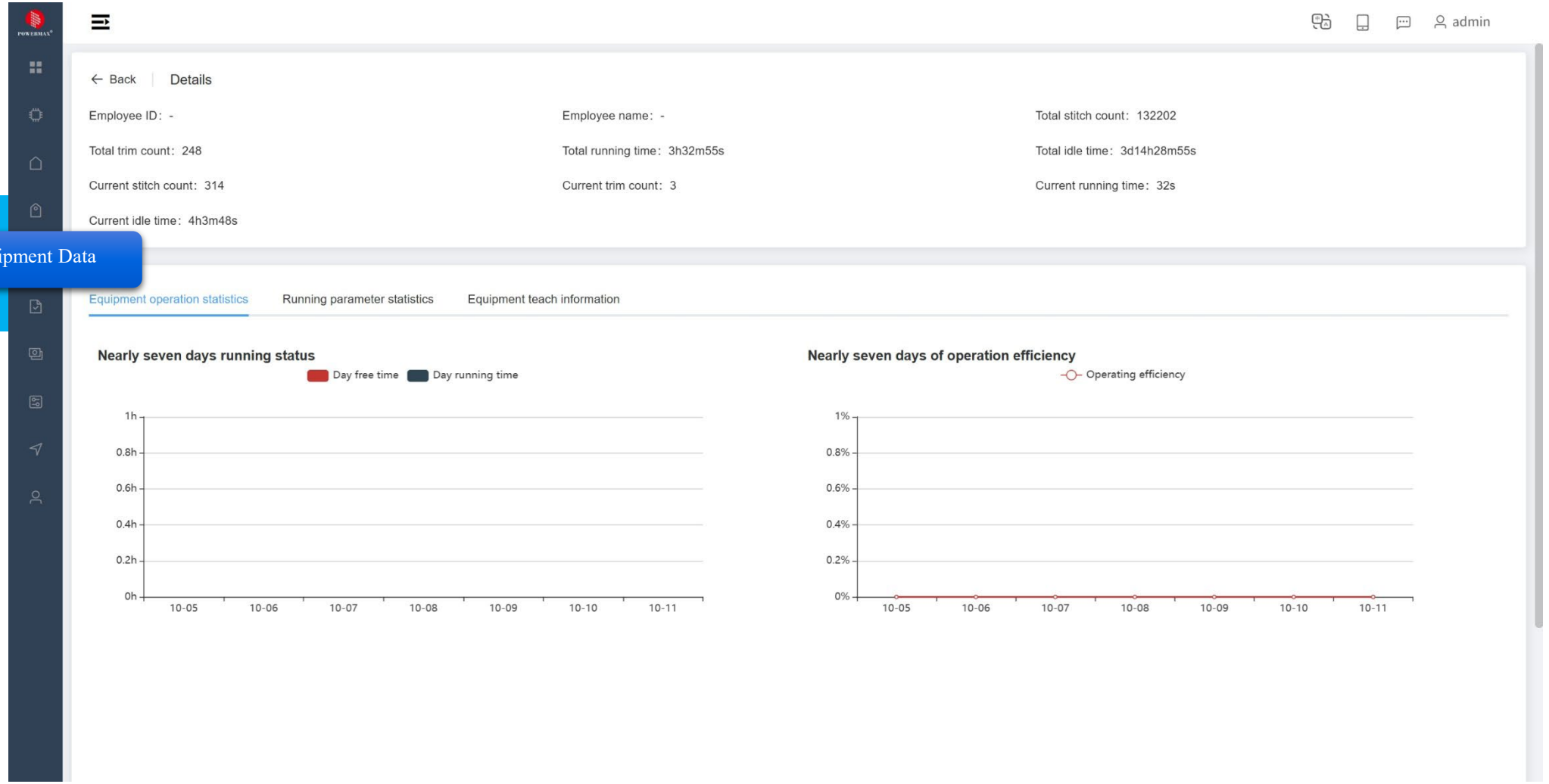
IoT System Function Demo

2. Production Equipment Management

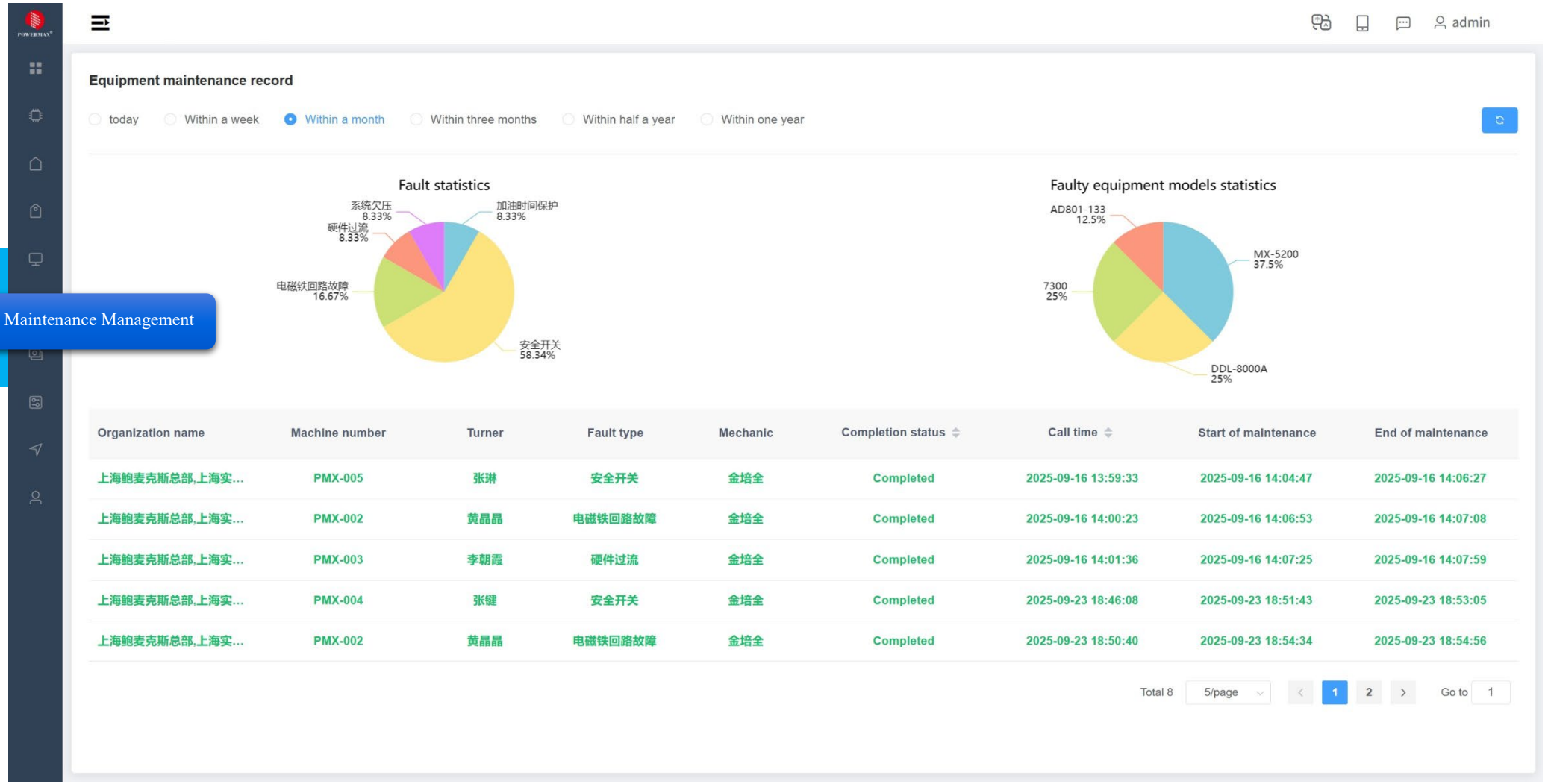
IoT System Function Demo: Real-time Equipment Data

Real-time Equipment Data



IoT System Function Demo: Equipment Maintenance Management

Equipment Maintenance Management



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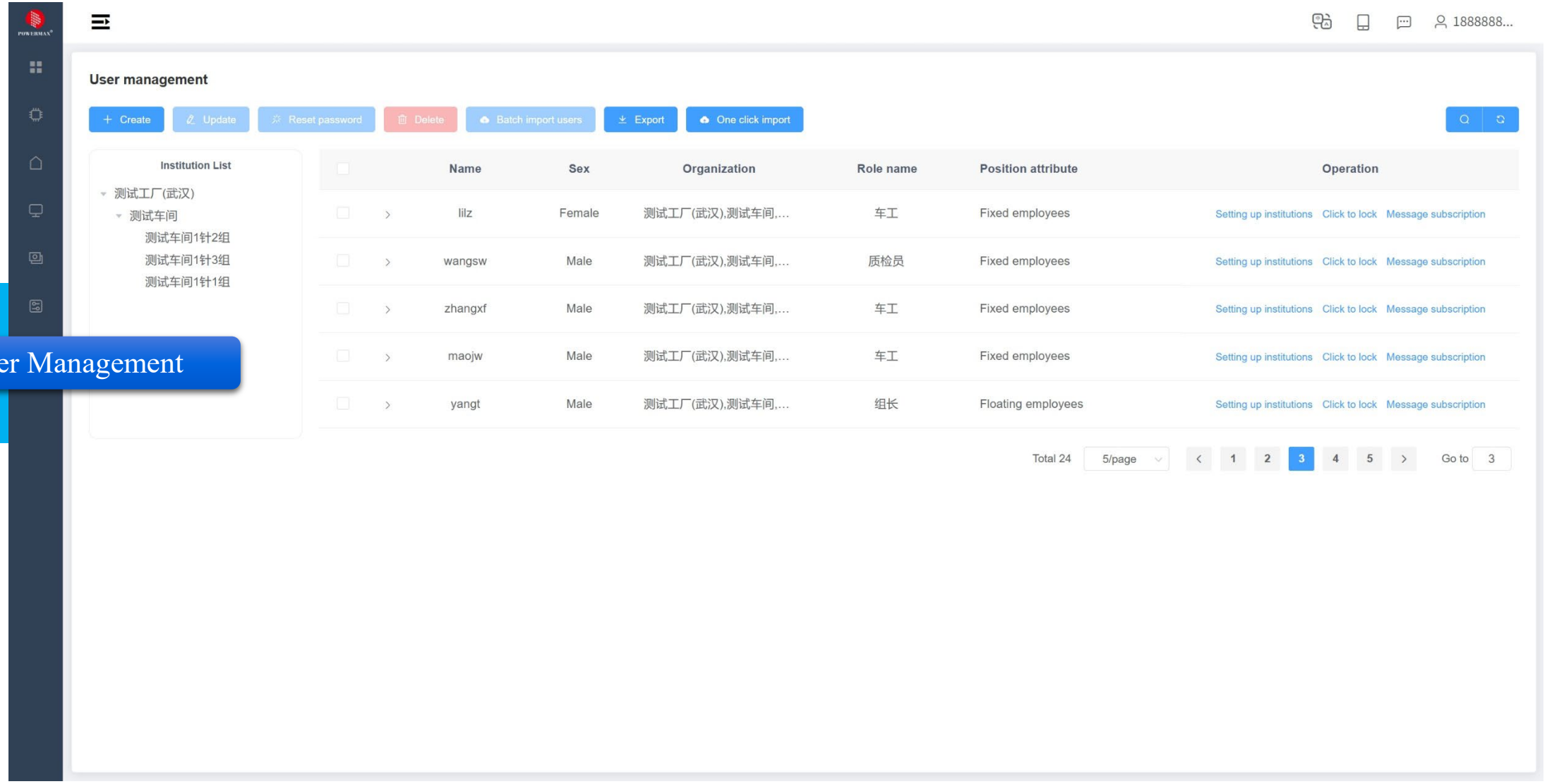
IoT System Function Demo

3. Personnel Management

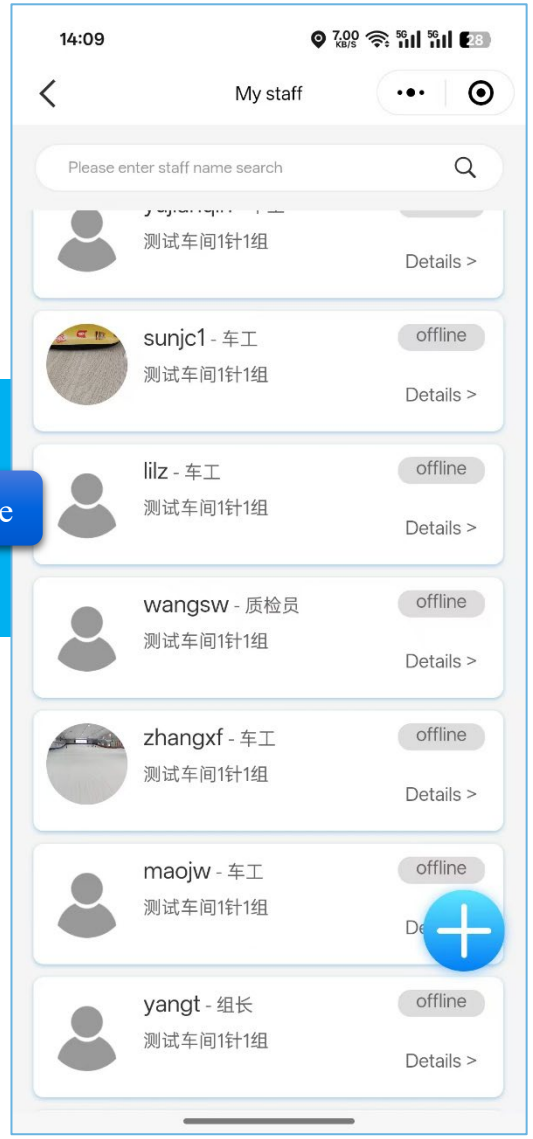
IoT System Function Demo: User Management

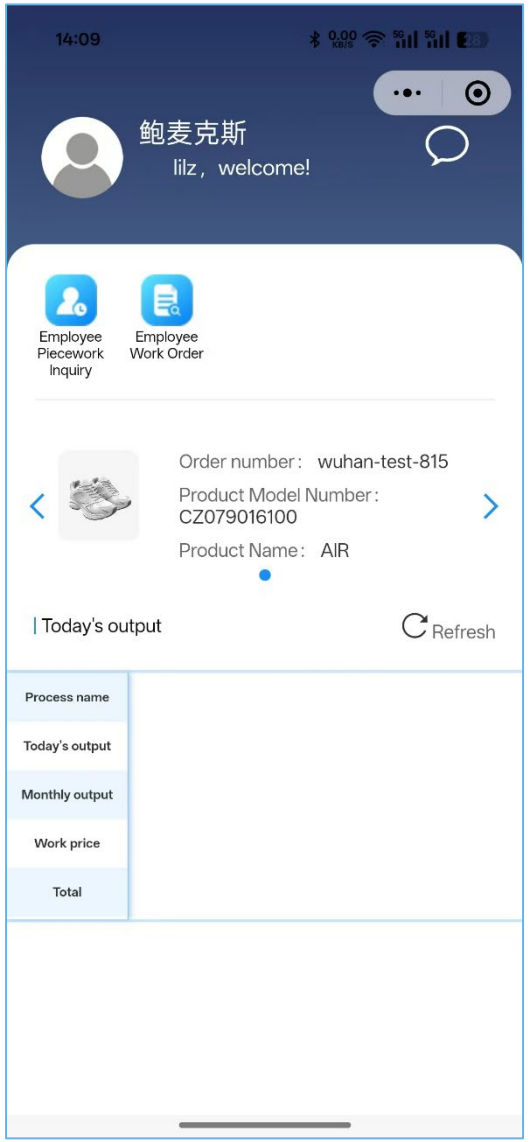


User Management

IoT System Function Demo: Mobile Applet Terminal - Employee Management Page

Applet - Employee Management Page





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IoT System Function Demo

4. Workshop Kanban

IoT System Function Demo: Production Line Integrated Kanban

Production Line Integrated Kanban

Period	Output	Good	Bad	Rework	Complete rework
8 - 9	7	7	1	0	0
9 - 10	31	31	2	0	0
10 - 11	23	23	1	0	0
11 - 12	15	15	0	0	0
12 - 13	9	9	0	0	0
13 - 14	27	27	0	0	0
14 - 15	13	13	0	0	0
15 - 16	1	1	0	0	0
16 - 17	1	1	0	0	0
17 - 18	0	0	0	0	0

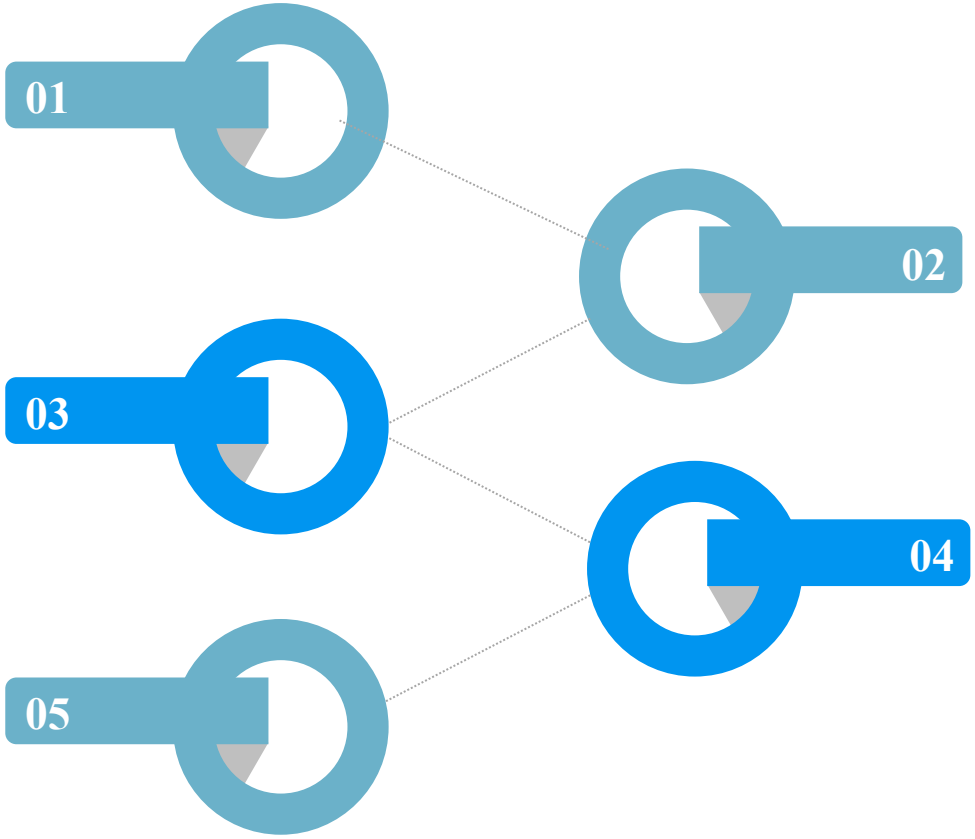
Size	Color	Output	Good	Bad	Rework	Complete rework
XS	红色	0	0	0	0	0
XXL	红色	0	0	0	0	0
XXXL	红色	0	0	0	0	0
L	红色	127	127	4	0	0
M	红色	0	0	0	0	0
S	红色	0	0	0	0	0
XL	红色	0	0	0	0	0

IoT System Function Demo: Production Line Integrated Kanban Overview

- Displays live production order data, daily and historical production insights, including workforce availability and equipment status, daily target output and real-time completed production, and yield performance;

- Provides real-time piece count and a process time balance chart for each production step. A reference line indicates the standard working hours required to meet daily targets, helping administrators optimize production efficiency;

- Monitors real-time production output for each size, along with quality inspection results and labor distribution statistics, ensuring precise control over production targets.



- Tracks real-time production output by time period, quality inspection results, and rework details (including rework due to incoming material defects and post-inspection repairs);

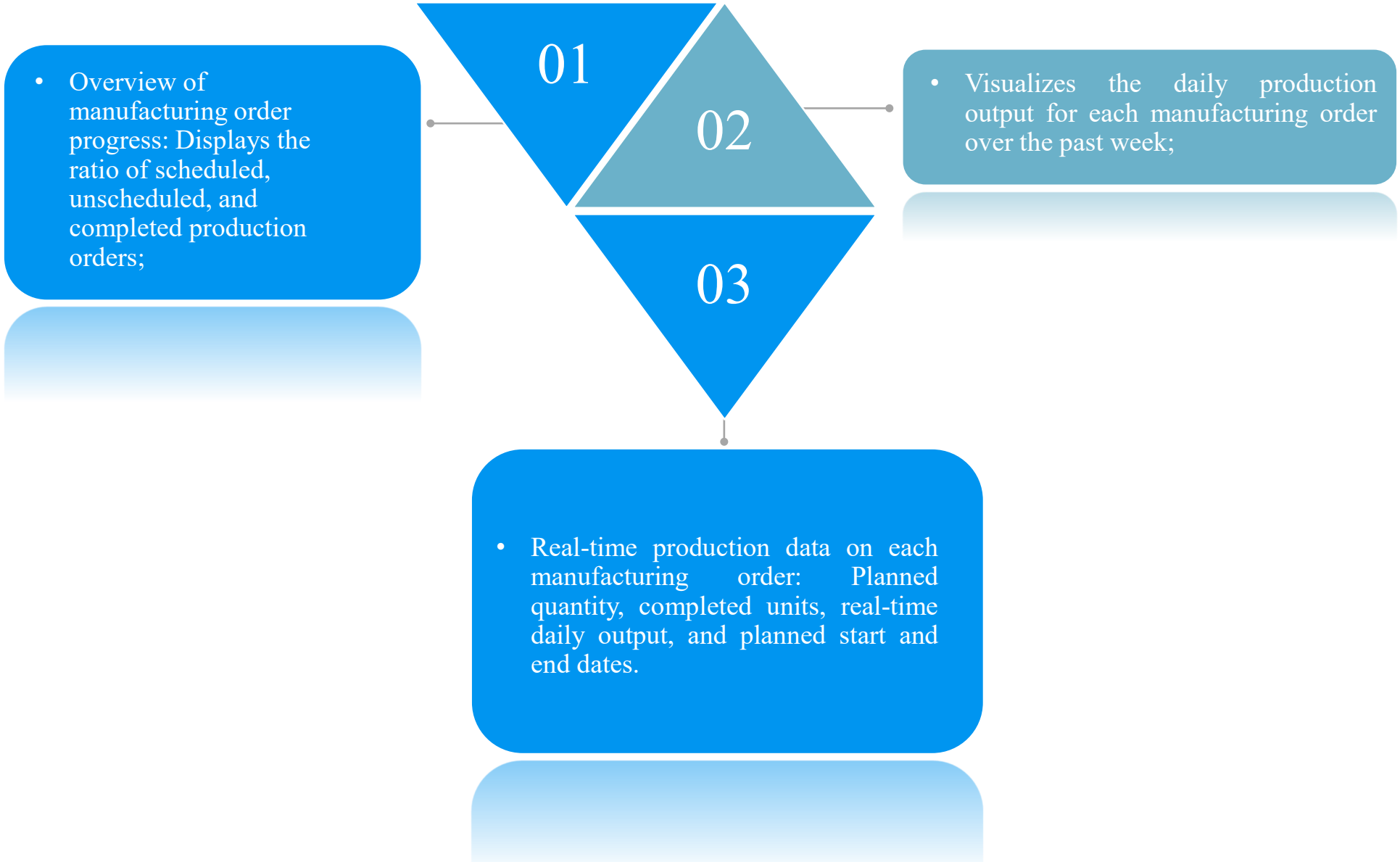
- Generates real-time pie charts analyzing the causes of quality defects, enabling administrators to quickly identify and address issues, minimizing losses;

IoT System Function Demo: Overall Manufacturing Order Progress Kanban (Order Progress)

Overall Manufacturing Order Progress

Order number	Product name	Planned quantity	Completed	Today's production	Order date	Delivery date
A25T922	红色短袖	5600	496	0	2025-09-22	2025-09-28
A25T908	红色短袖	750	42	0	2025-09-08	2025-09-12
A24T425	运动短袖绿	1000	10	0	2024-04-22	2024-05-30

IoT System Function Demo: Overall Manufacturing Order Progress Kanban Overview



IoT System Function Demo: Equipment Monitoring and Statistics Kanban

Equipment Monitoring and Statistics

IoT System Function Demo: Equipment Monitoring and Statistics Kanban Overview

1
2
3
4
5
6

- Total number of devices, power-on/off status, and overall power-on rate;
- Usage rates of different equipment types for the current day and month;
- Failed equipment models and failure proportion statistics (Analyzes failure rates by equipment model, manufacturer, and type);
- Pie charts of the most common equipment failure types;
- Hourly power-on rates throughout the day;
- Equipment utilization rates over the past week.

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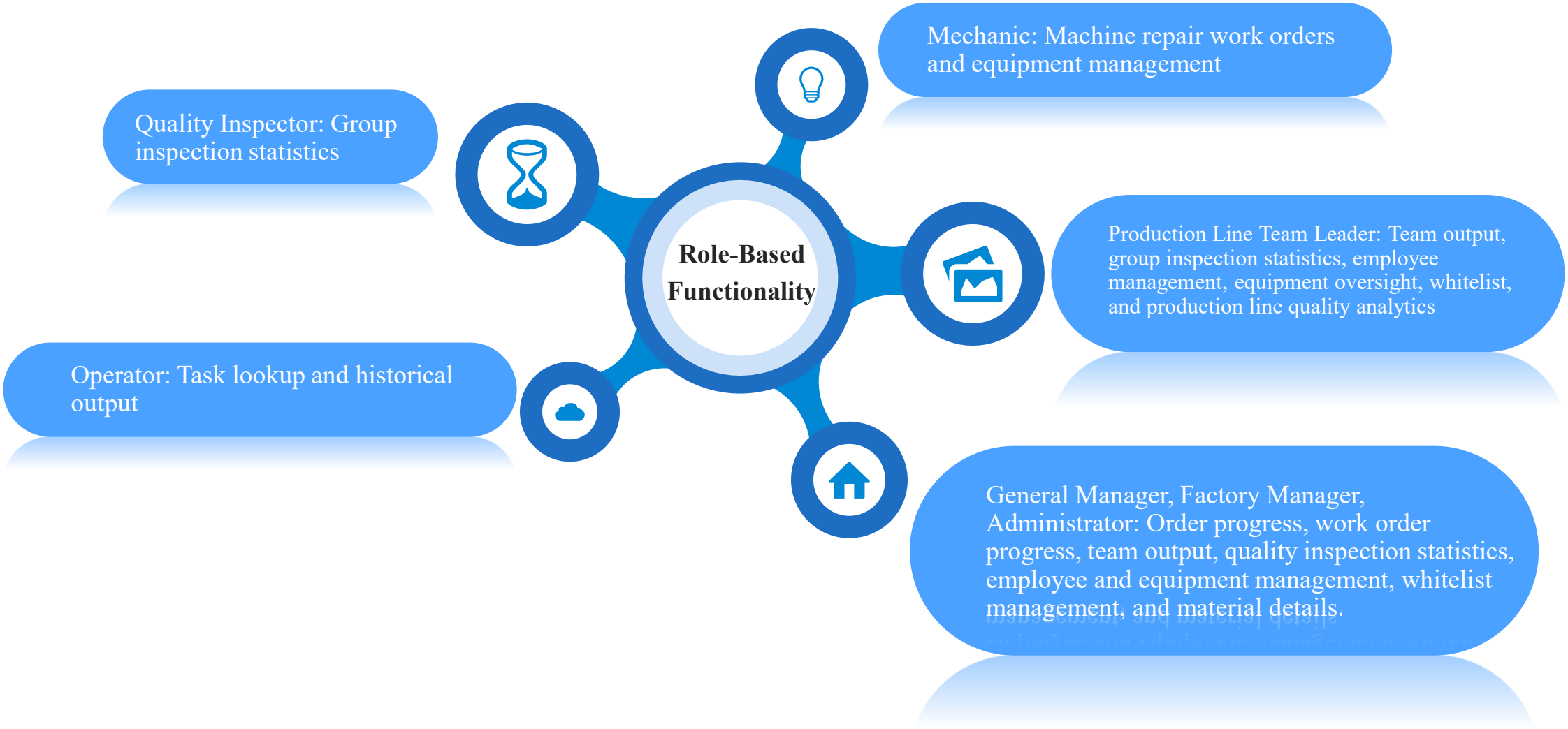
IoT System Function Demo

5. Production Management App

IoT System Function Demo: Mobile App

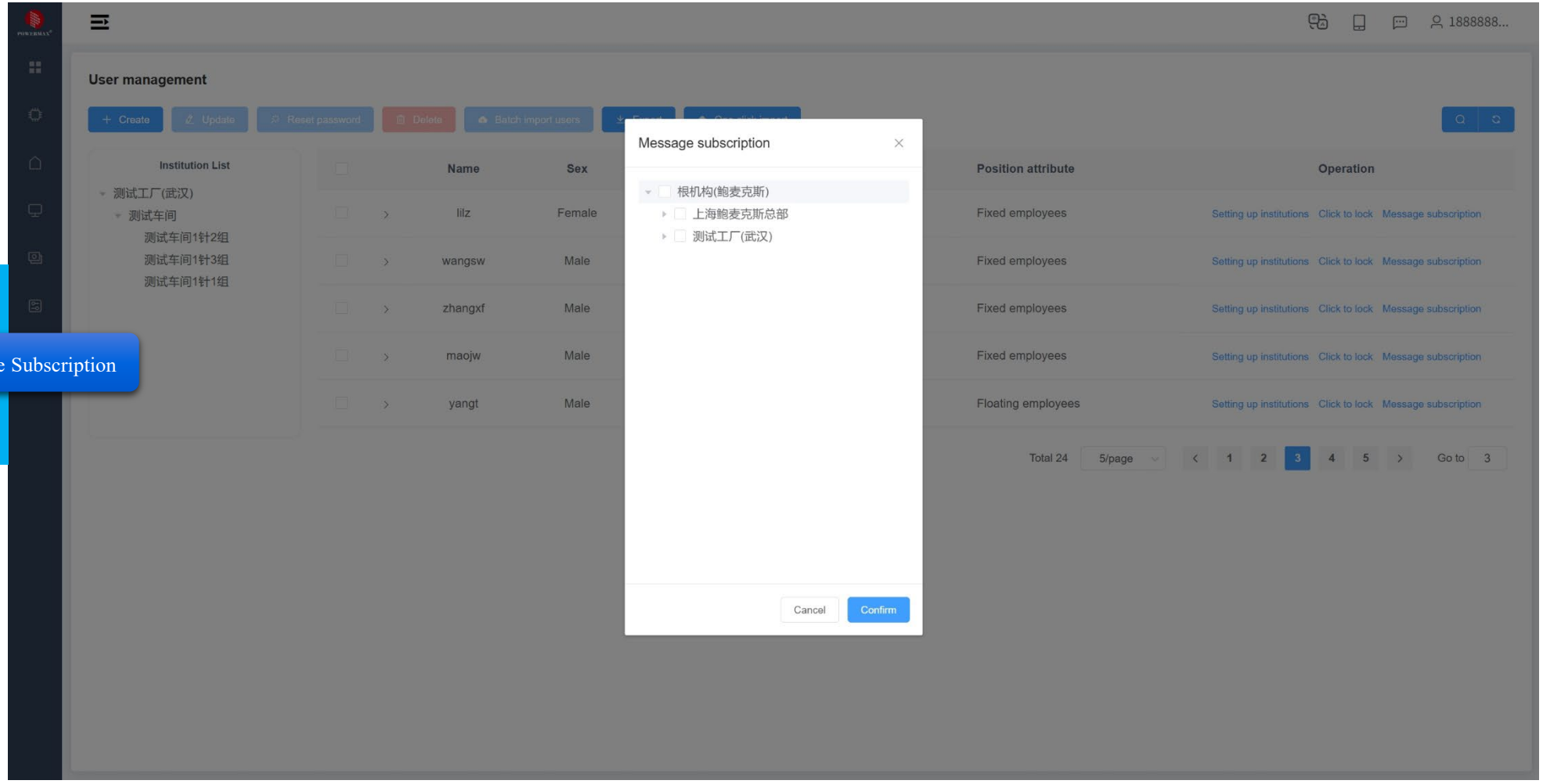


IoT System Function Demo: Mobile App

IoT System Function Demo: Mobile App - Message Subscription

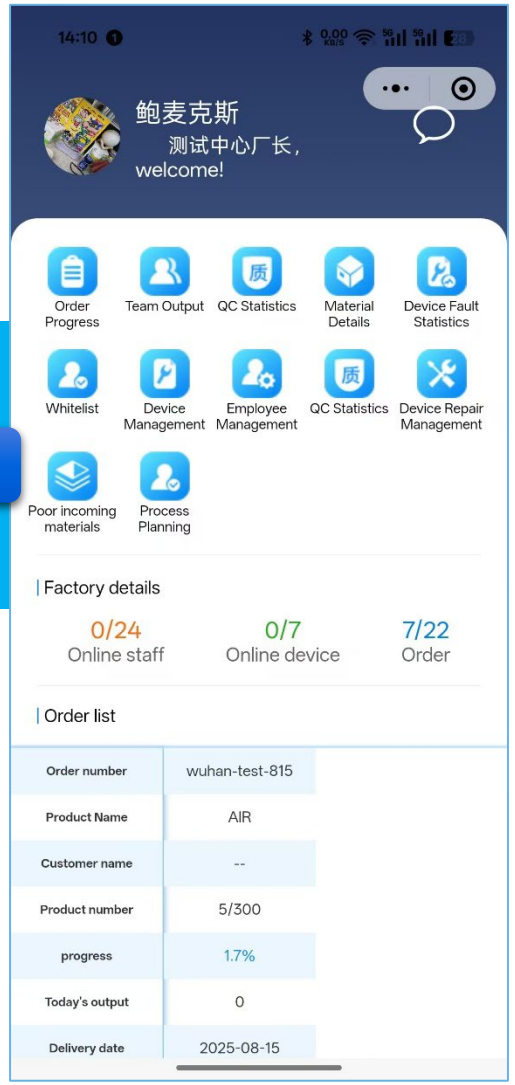
(The backend proactively pushes abnormal alerts and call notifications to administrators at various levels via the app)

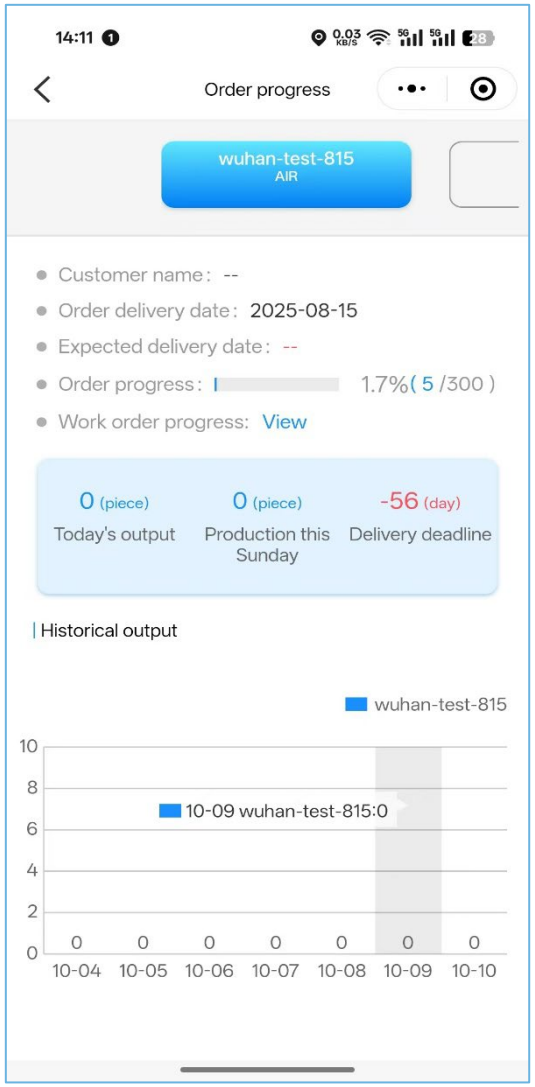
Mobile App - Message Subscription



IoT System Function Demo: Mobile App - Administrator Page

Mobile App - Administrator Page





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03

IoT System Hardware

IoT System Hardware

	Device Name	Remarks
01	Data Acquisition Unit	
02	Face Recognition Workstation Screen	
03	14T Workstation Screen	
04	RFID Reader	
05	Barcode Scanner	Optional
06	Ticket Printer	Optional

IoT System Hardware - Data Acquisition Unit

01

1. Compatible with electronic control systems of various sewing equipment brands
2. Captures equipment start and stop signals
3. Monitors equipment runtime, idle time, etc.
4. Accurately records the number of stitches performed by the equipment
5. Detects action signals such as thread cutting and presser foot lifting
6. Supports integration with otherl digital and analog sensors

IoT System Hardware - Topology Diagram (Production line workstation topology)

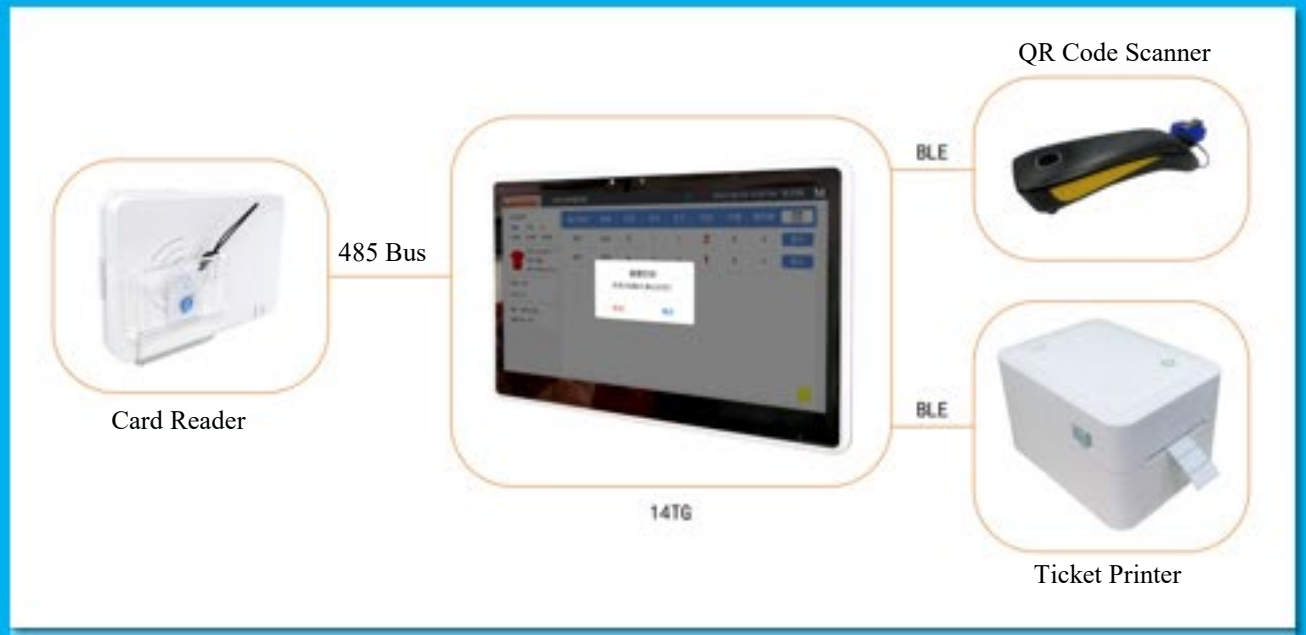
IoT System Hardware - Face Recognition Workstation Screen

(Built-in WiFi/BLE 5.0 and RFID reader, supporting face recognition)

02

1. Employee login management
2. Work order task management: Manufacturing orders, products, colors and sizes, and process-specific tasks
3. Piecework & equipment status reporting
4. Task statistics management
5. Call management: Requests for mechanics, team leaders, and rework handling for incoming materials
6. Rework management: QC alerts for quality control exceptions…

IoT System Hardware - Hardware Topology



Sorting Station Topology

QC Station Topology

IoT System Hardware - 14T Workstation Screen

03

The IoT terminal software operates on our self-developed 14-inch full-touch Android smart display with 1080P high resolution. The hardware includes a camera, BLE 4.0, Wi-Fi, under-display NFC, USB, and RS485. Leveraging our extensive expertise in image recognition, the system supports advanced functions such as facial recognition and limb recognition.

IoT System Hardware - RFID Reader

04

The RFID reader is designed to read RFID cards efficiently.

IoT System Hardware - Packaging Management Workstation Screen

(Facilitates cutting piece packaging and binding with RFID tag cards)

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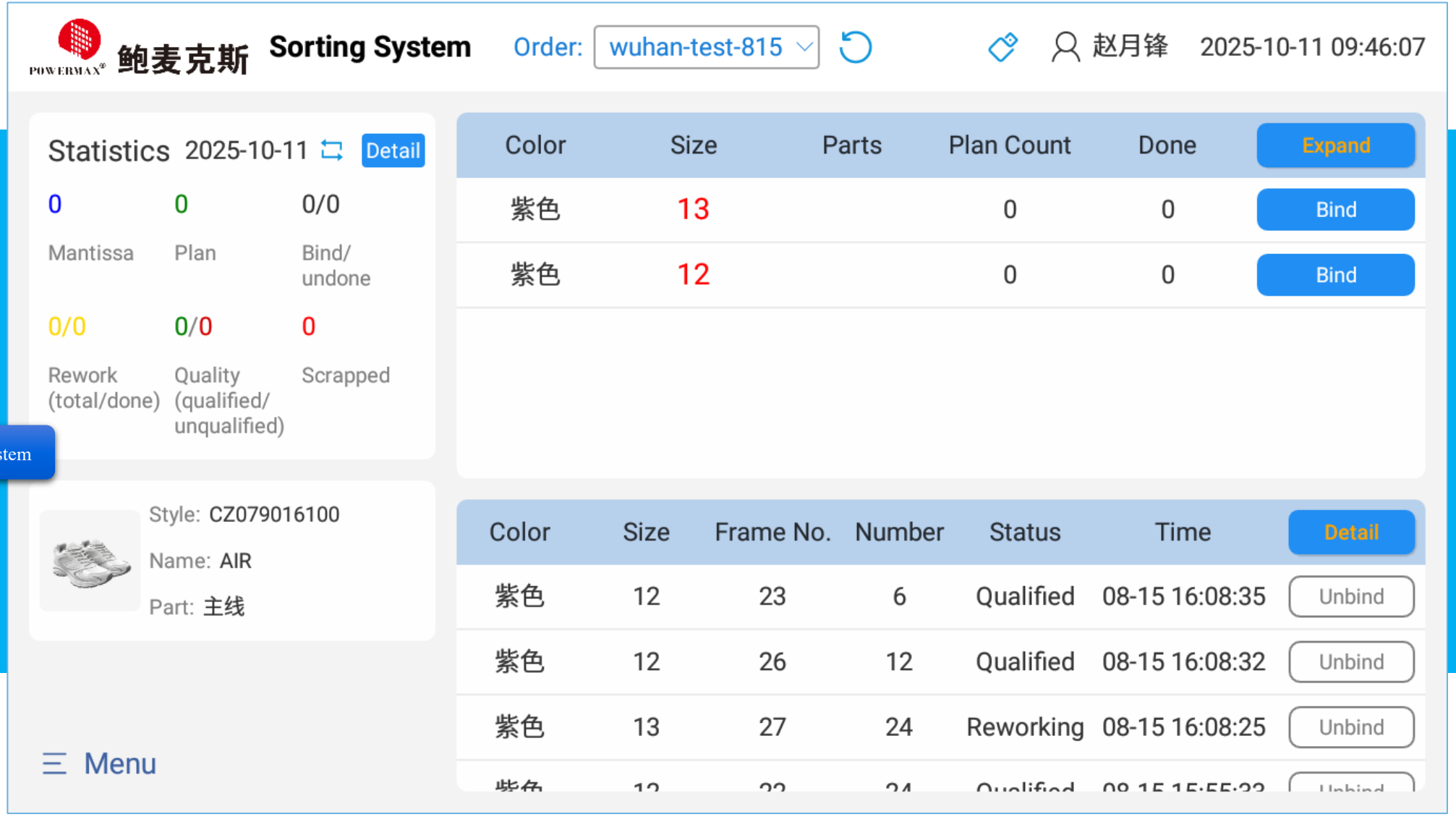
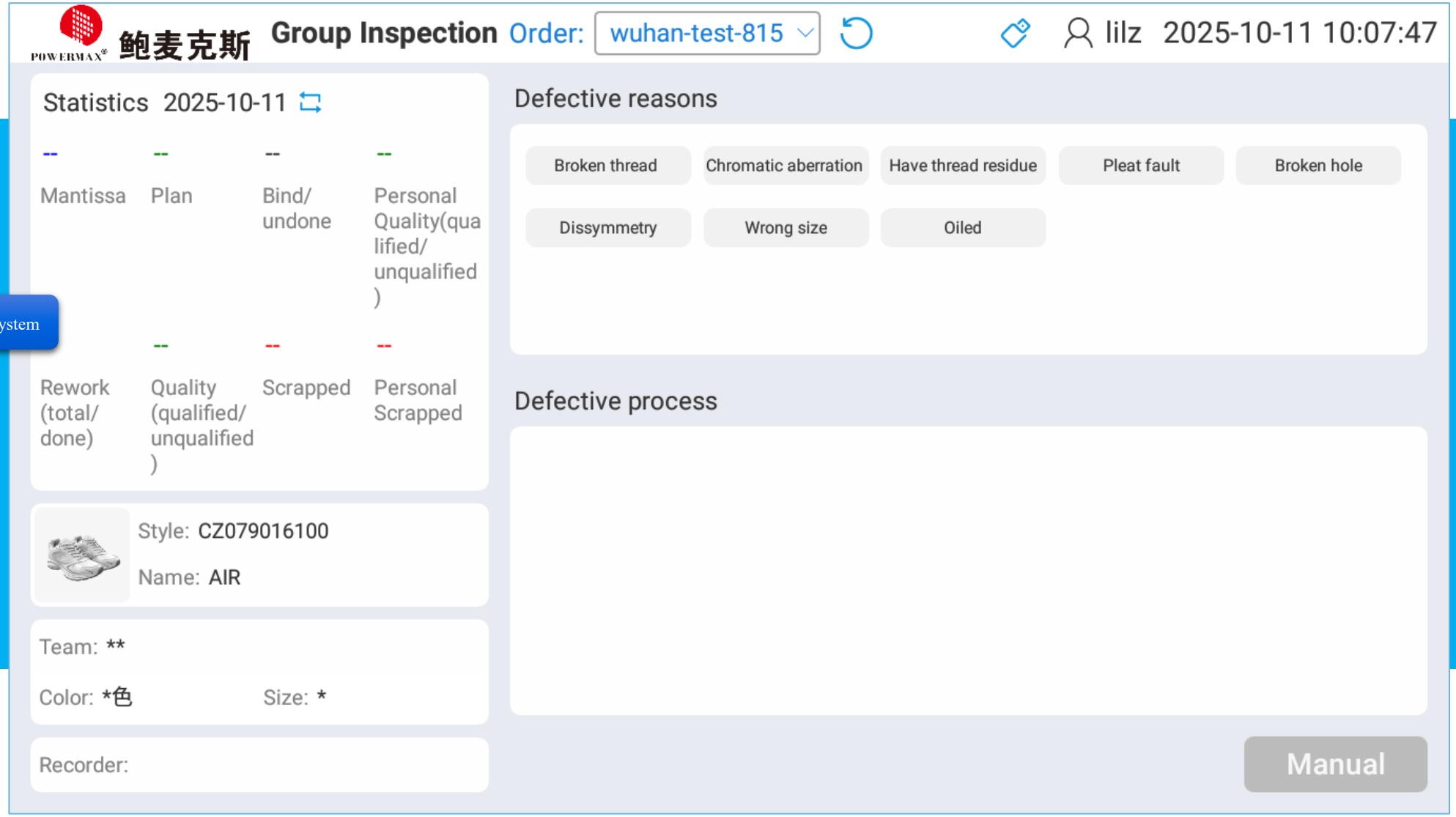
Sorting Station Management System



IoT System Hardware - Group Inspection Management Workstation Screen

(Supports quality inspection, including recording defective processes, defect causes, and operator details)

Group Inspection Management System



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04

Successful Cases

Successful Cases

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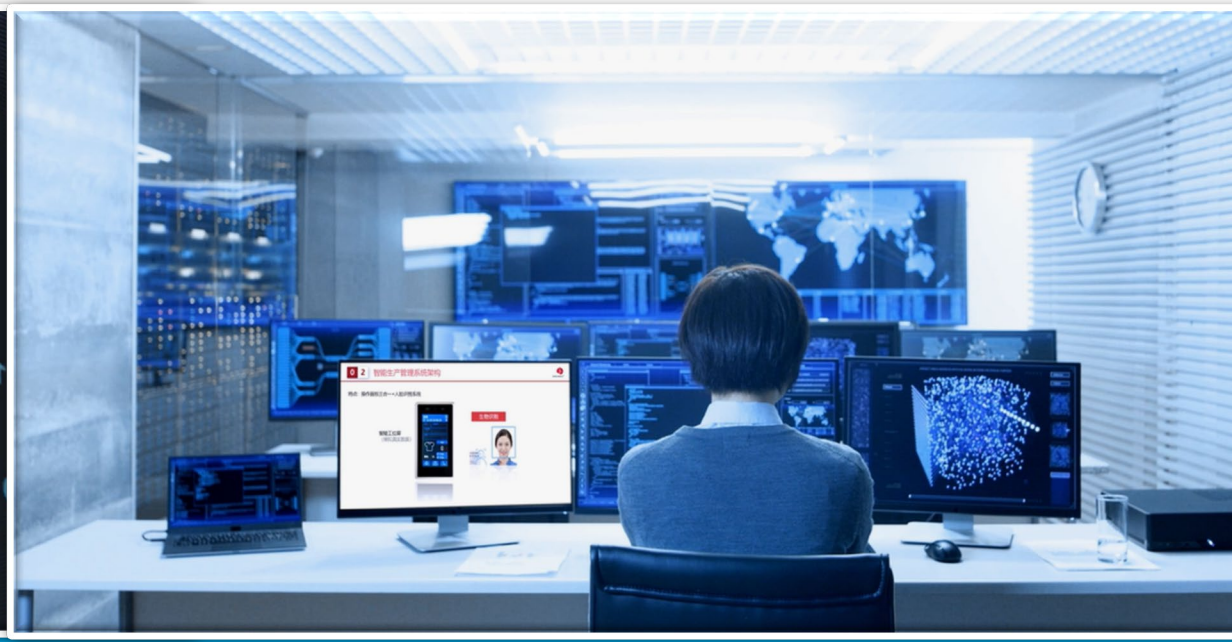

Successful Cases

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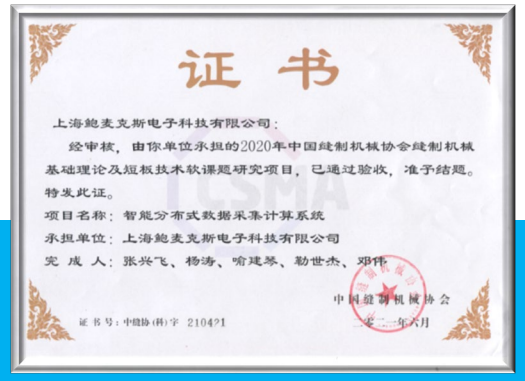
IoT System Award Certificates and Patents



专利	一种智能吸附系统及其工作方法
	一种自由边框压脚装置
	一种工艺流程编排辅助系统
	一种机械手的取料抓取结构
软件著作权	鲍麦克斯缝制管理系统MES软件
	鲍麦克斯网格式制衣流水线物料调度软件
	鲍麦克斯蓝牙网关装维平台软件
	鲍麦克斯智能服装管理平台分拣软件V1.0
	鲍麦克斯智能服装管理平台质检软件V1.0
	鲍麦克斯智能生产管理系统APP软件V1.0
软件产品登记	鲍麦克斯缝纫机蓝牙网络装维软件V1.0
	鲍麦克斯缝制自动化管理软件V1.0
	鲍麦克斯平缝机步进控制系统主控软件V3.0
中国缝制机械行业软件课题证书	智能分布式数据采集计算系统
上海市软件和集成电路产业发展专项资金项目	基于异构平台的智能分布式数据采集计算系统

Thank You for Watching

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Power Technology And Max Integration

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