# Shenhao Technology

Shenhao enables industrial health without any difficulties

Hangzhou Shenhao Technology Co., Ltd. was established in 2002. It specializes in the research and development of artificial intelligence, data monitoring, smart grid and other major industrial health-related technology products. It has conducted a large number of researches in area of robotic intelligent inspections and on-line monitoring of industrial equipment.

Using the capabilities of company's core technician team Shenhao created a national demonstration academician workstation, a provincial smart grid enterprise research institute, a provincial high-tech enterprise research and development center, a provincial enterprise technology center, a provincial industrial design center, and a design joint research center, etc. The company was awarded as a provincial-level hidden champion enterprise and a provincial-level innovative demonstration enterprise.

The company relies on the enterprise spirit of "seeking truth, innovation, unity, and integrity", adheres to the business philosophy of "greetings, shearing a profit, helping if you are in trouble, and looking for better", and strictly adheres to the "technology-based, service-oriented" business philosophy. The service tenet is to realize the ambitious vision of " Shenhao enables industrial health without any difficulties ".

# Railway Inspection Robot

## Product Introduction

For the comprehensive inspection of the railway transit line and public service lines, Shenhao Technology independently developed a railway inspection robot. This product adopts a combination of rail wheel self-propelled motion platforms and various high-precision inspection systems. It is used to assist the manual completion of inspection tasks for the entire line, solve the problems of heavy tasks, difficult inspections, and many missed inspections encountered in traditional manual inspections. Thereby reducing inspection labor costs, reducing personnel work intensity, and improving Inspection efficiency and quality, timely and comprehensively eliminate potential safety hazards in the line.

## Main functions

- Track geometry parameter detection
- Rail wave wear detection
- Fastener defect detection
- Limit intrusion detection
- Roadbed defect detection
- Tunnel apparent defect detection

## Technical Specification

| Weight | Inspection Speed | Endurance | Protection Level | Working Temperature | Working Humidity |
|--------|------------------|-----------|------------------|---------------------|------------------|
| ≤115kg | ≥5km/h | ≥4h | IP55 | -20~60℃ | 0~95%rh |

# Train bottom inspection robot

## Product Introduction

The train bottom inspection robot adopts a wheeled motion platform combined with a mechanical arm and a vision system to run in the train maintenance trench, instead of manually completing the inspection task of the car bottom appearance in the daily maintenance of the train, and solving the tasks encountered in the traditional manual inspection. It helps reduce inspection labor costs, reduce personnel work intensity, improve inspection efficiency and quality, and eliminate hidden safety hazards in train operation in a timely and comprehensive manner.
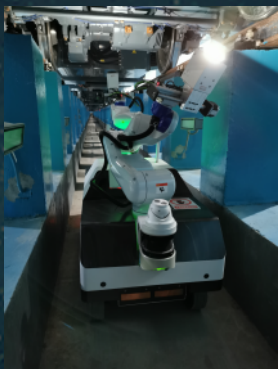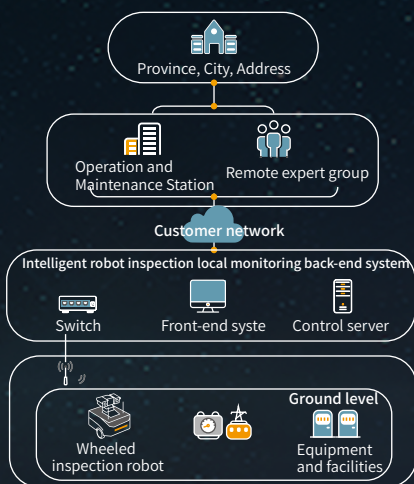


## Main functions



- Fully autonomous navigation
- Vehicle number recognition
- Recognition of defects in the train bottom(bolts, pins, pipelines, temperature labels, oil levels, valves, etc.)
- Train bottom defect measurement (brake shoe and tread gap, pipeline and cable position distance)
- Defects intelligent positioning and alarm
- Background data analysis and intelligent diagnosis system
- Automatic charging

# Outdoor wheeled inspection robot

## Product Introduction

The wheeled intelligent inspection robot uses technologies such as trackless navigation, intelligent image recognition and analysis, and multi-sensor fusion, which can replace manual equipment detection in specific indoor and outdoor environments. It is widely used in various indoor and outdoor equipment inspection scenarios such as railway traction substations and power distribution rooms, effectively reducing inspection costs and labor intensity, and improving inspection efficiency and quality.

Province, City, Address

Operation and Maintenance Station

Remote expert group

Customer network

Intelligent robot inspection local monitoring back-end system

Switch

Front-end syste

Control server

Ground level

Wheeled inspection robot

Equipment and facilities

## Main functions

- rackless navigation, adapt to complex road environment
- Visual + thermal imaging video surveillance
- Environmental temperature and humidity detection
- Data analysis and fault alarm
- Autonomous charging
- Dual-way intercom
- Multiple inspection methods and customization capabilities

# Indoor Rail-Mounted Inspection Robot

## Product Introduction

The rail-mounted inspection robot adopts rail suspension, pan-tilt lifting, multi-sensor detection, etc., which can replace manual tasks such as inspection, fault diagnosis, early warning and alarm in indoor or tunnel environments, saving a lot of labor costs and improving the inspection efficiency and intensity. The robot can be widely used in various environments such as power distribution room, relay protection room, switch room in numerous industries.
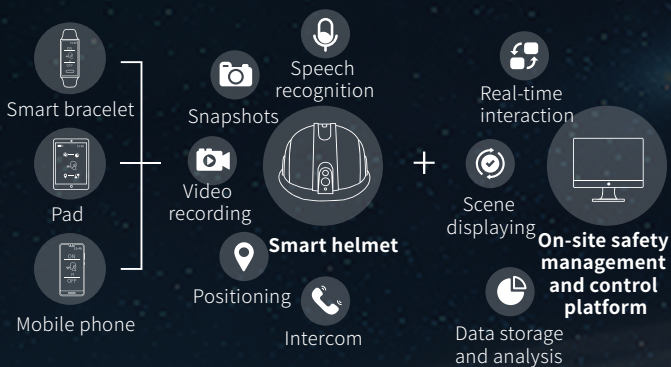


Walking mechanism
Obstacle avoidance sensor
Debug interface
Speaker
Indicator light
Thermal imaging sensor
Touch screen
Sensor arm
Obstacle avoidance sensor
Obstacle avoidance sensor
Visible light camera
Telescopic mechanism
Contraction
Partial discharge sensor



## Main functions

- ⚇ Visual + thermal imaging video surveillance
- ◊ Environmental temperature and humidity detection
- ⟪ Partial discharge detection
- ◎ 24/7 continuous inspection
- ⚲ Data analysis and fault alarm
- ⛬ Multiple inspection methods and customization capabilities

# Personnel Safety Control System

## Product Introduction

The smart helmet is an intelligent wearable product that solves the difficulty of on-site operation management and data analysis. It uses artificial intelligence, big data, mobile Internet, IoT platform, cloud computing, and other technologies to allow front-end field operations Intelligentization. It makes the back-end management more efficient, and at the same time realizes the real-time linkage of front-end field operations and back-end management systems. It has the function of real-time data collection and analysis to improve work and management efficiency. It uses open interfaces and integrates with other various information platforms and can be widely used in various industries such as rescue and disaster relief, railway maintenance, factory and mine operations, dock inspections, municipal construction, and power construction inspections.

Smart bracelet

Pad

Mobile phone

Snapshots

Speech recognition

Video recording

**Smart helmet**

Positioning

Intercom

Real-time interaction

Scene displaying

**On-site safety management and control platform**

Data storage and analysis

## Main functions

- Personnel management and real-time location positioning
- Real-time data gathering
- Refined remote guidance and remote inspection management
- Intelligent safety hazard alarm and notification