hxrobot

HUIXING

ROBOT BROCHURE

HX Intelligent • Driving Intelligence for All • Steadily Navigating the Future

COMPANY PROFILE

Founded in 2023, Guangzhou Huixing Intelligent Technology Co., Ltd. is committed to the technological R&D and programming of a series of mobile robot products. Our team boasts over 10 years of research and development experience in the industry, with a focus on the design of intelligent wire-controlled drive robots. Intelligent motion control and independent innovation technologies are for indoor and outdoor scenarios.

Our product range covers standard wire-controlled drive new energy vehicle platforms, advanced unmanned robots, intelligent patrol robots, autonomous delivery robots, and unmanned guided vehicles (UGVs) for industrial transportation. These technologies are widely applied in various fields, such as education, inspection, manufacturing plants, and parking space allocation. We not only provide standard products but also customize independent innovation solutions based on robot operating systems to meet the diverse practical needs of customers.

National High-Tech Industry

Design Patent for a Domain Middle Platform

CMMI Level 5 Certification

ISO 27001 Certification

ISO 9001 Quality Certification

Cartner Consulting Partners

ISO Information Security Management System Certification

Level 3 Information Security Certification

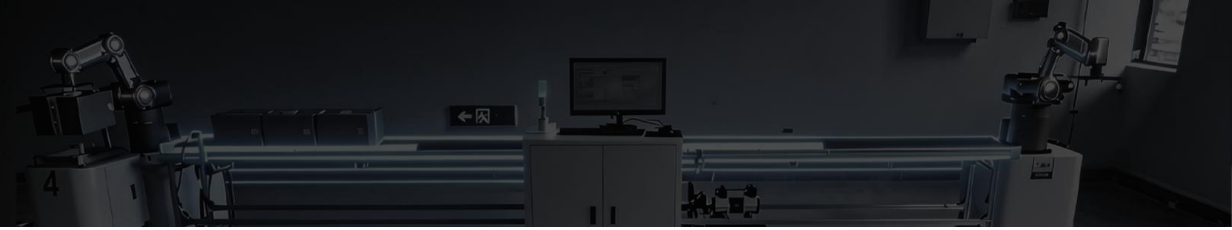
In-place rotation / Differential control / High-precision servo control / ROS navigation

DT SERIES

Standard chassis with dual-wheel differential

DT-01/DT-01 Pro/DT-02 Pro

DT Series Standard Chassis with Dual-Wheel Differential



The DT Series two-wheeled mobile robots with differential drive offer high flexibility, strong load-carrying capacity, automated operation, safety and reliability, and cost-effectiveness. They can be equipped with various tools and devices as needed and are widely used in indoor factory settings, indoor shopping malls, and indoor campus environments.

CASE STUDY: Lifting and Transport Robot at a Silkworm Farm

Project Overview: This silkworm breeding experimental facility requires the deployment of lifting AGV robots to automate the handling and circulation of silkworm rearing trays. The core objective is to align with the breeding process, enabling the fully automated transfer of trays from the storage area to the production line and then to the idle zone, thereby supporting the efficient operation of procedures such as disinfection and nutrient solution replenishment. Traditional manual handling suffers from issues including high labor intensity, low precision, damage to trays, poor coordination, and low efficiency. This project employs specialized lifting AGVs that utilize magnetic strip navigation to achieve millimeter-level precision positioning. These AGVs can stably lift and transport silkworm trays and work in coordination with assembly line robotic arms to automate the entire process of picking, transporting, and storing. This establishes an intelligent handling system that integrates precise lifting, automated transport, and collaborative operations, thereby promoting standardized, efficient, and refined operations at the base.

Results:

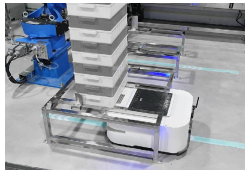
Handling Precision and Operational Efficiency: The lifting AGV system utilizes magnetic strip navigation to achieve millimeter-level precision in positioning and docking. It can stably carry multi-tiered silkworm frames and works in coordination with assembly line robotic arms to complete the entire automated process—from transport from the stacking area, through disinfection and replenishment, to storage in the idle area—in a time significantly shorter than the traditional 30 minutes, greatly improving operational efficiency.

Enhanced Efficiency: The system supports 24/7 continuous automated operation, replacing labor-intensive manual tasks and standardizing processes. It prevents damage to silkworm trays and reduces stress on the silkworms, cutting labor costs and handover time by 75%. This frees up research resources, drives the intelligent and refined upgrading of silkworm farming facilities, and ensures stable and efficient experimental operations.

Scheduled Dust Monitoring in the Workshop

Integrated Teaching System for Conveyor Belt AGV Scheduling

High-precision alignment and handling using rollers



Lifting and Transport Robot for Silkworm Farming Facilities

VEHICLE MODEL	DT-01	DT-01 Pro	DT-02 Pro
Dimensions	500*420*310（mm）	730*460*260（mm）	980*670*268（mm）
Chassis Weight	35KG	46KG	95KG
Ground Clearance	23MM	45MM	40MM
Protection Rating	IP22	IP22	IP22
Operating Temperature	-10-60°	-10-60°	-10-60°
Battery Type	Lithium-ion battery	Lithium-ion battery	Lithium-ion battery
Battery Capacity	24V 12AH	24V 20AH	48V 20AH
Battery Endurance	3H	>4H	>3H
Maximum Speed	1.5M/S	1.5M/S	1.2M/S
Vertical Load Capacity	50KG	120KG	300KG
External Power Supply	24V/19V/12V	24V/19V/12V	48V/24V/19V/12V
Control Mode	232 serial port	232 serial port	232 serial port
System Support	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU

PRODUCT ADVANTAGES

- Standard RS-232 Serial Communication Protocol
- ROS Supports ROS/ROS2 custom development
- Supports automatic charging when the battery is low
- Can rotate in place and turn easily
- Maximum load capacity: 300 kg
- Millimeter-level navigation and positioning accuracy

In-place rotation / Differential control / High-precision servo control / ROS navigation

PT SERIES

PT Series Standard Chassis with Four-Wheel Differential

PT-01 Pro/PT-03

PT Series Standard Chassis with Four-Wheel Differential

The PT Series four-wheeled differential-drive mobile robots utilize differential control technology, enabling them to turn freely and move with agility to adapt to various work environments. They can be equipped with different tools and devices as needed to perform tasks such as material handling, picking, and loading/unloading, and are widely used in logistics, warehousing, production lines, healthcare, education, and many other fields.

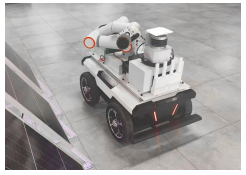
CASE STUDY:RTK-Enabled Autonomous Survey Vehicle for Topographic Mapping

Project Overview:A surveying and exploration company needs to conduct large-scale outdoor topographic surveying, geological exploration, and field data collection. Traditional manual operations face challenges such as high risks in complex terrain, inconsistent surveying paths, insufficient point accuracy, low fieldwork efficiency, and poor data consistency. This project utilizes a high-performance four-wheel differential navigation chassis equipped with professional exploration and data collection devices. Combined with RTK centimeter-level high-precision positioning, an industrial-grade waterproof display, and ultrasonic radar, the system enables autonomous path planning, precise docking, and fully automated surveying. This creates an unmanned, high-precision, all-weather operational system that effectively enhances field exploration efficiency and data reliability.

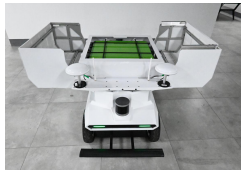
Results:

Surveying Accuracy and Operational Stability: The system utilizes RTK (Real-Time Kinematic) positioning, consistently maintaining positioning accuracy within 5 cm. It supports custom flight paths, multi-point patrols, and trajectory re-tracking, effectively addressing issues such as trajectory drift, inaccurate data collection, and data inconsistencies associated with manual surveying. This meets the requirements of professional applications such as high-precision topographic surveying, geological exploration, and line surveying.

Improved Efficiency: The unmanned vehicle can replace manual labor in high-risk and complex areas such as steep slopes, muddy terrain, and remote locations. It can continuously patrol several kilometers in a single run, increasing fieldwork efficiency by over 60%. Data collection is fully automated and requires no on-site personnel, significantly reducing operational intensity and field safety risks.



Solar Panel Cleaning Robot



Air-Ground Integrated UAV Navigation Vehicle

RTK-Enabled Autonomous Survey Vehicle for Topographic Mapping

Multifunctional Night Patrol Vehicle for the Park

VEHICLE MODEL	PT-01 Pro	PT-03
Dimensions	995*615*435（mm)	1575*1065*565（mm)
Chassis Weight	80KG	175KG
Ground Clearance	105MM	120MM
Protection Rating	IP54	IP54
Operating Temperature	-10-60°	-10-60°
Battery Type	Lithium-ion battery	Lithium-ion battery
Battery Capacity	48V 20AH	48V 40AH
Battery Endurance	2H	＞2H
Maximum Speed	1.2M/S	1.5M/S
Vertical Load Capacity	80KG	200KG
External Power Supply	48V/24V/19V/12V	48V/24V/19V/12V
Control Mode	232 serial port	232 serial port
System Support	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU

PRODUCT ADVANTAGES

- Standard RS-232 Serial Communication Protocol
- ROS Supports ROS/ROS2 custom development
- Maximum battery life > 4 hours
- Four-wheel differential drive, 360-degree turn in place
- Maximum vertical obstacle clearance: 10 cm
- Can be equipped with laser and RTK multi-navigation systems

Four-way motor / Four-wheel drive motor /
Omnidirectional movement mode / ROS navigation

HT SERIES

HT Series Standard Chassis with Four-Wheel Drive

HT-01 Mini/HT-01/HT-01 MAX/HT-02/HT-03

HT Series Standard Chassis with Four-Wheel Drive

The HT series of mobile robots features four-wheel, four-wheel-drive control and an omnidirectional multi-motion model with real-time response capabilities. The independent drive system for each wheel provides the robot with exceptional maneuverability, enabling precise steering and positioning. With their high mobility and flexibility, these robots offer broad application prospects in various fields, including warehousing and logistics, scientific research and education, and agriculture.

CASE STUDY: Multifunctional Inspection Vehicle for Indoor and Outdoor Pipelines

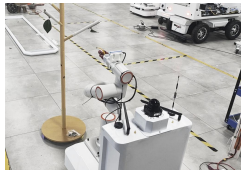
Project Overview:A company requires a specialized four-wheel, four-wheel-drive pipeline inspection robot suitable for both indoor and outdoor use to perform comprehensive inspections of both outdoor and indoor pipelines, seamlessly switch between environments, and accurately detect pipeline conditions and anomalies beneath the structure. Traditional inspection methods suffer from issues such as complex navigation transitions, navigation failures caused by similar outdoor features, limited field of view, difficulty in detecting hidden hazards beneath the structure, low efficiency, and high safety risks for personnel. This project employs a four-wheel, four-wheel-drive configuration, integrating dual-path navigation—combining indoor LiDAR with outdoor RTK—along with a gimbal camera and under-vehicle detection equipment. It enables seamless switching between indoor and outdoor environments, visual inspection, and monitoring of temperature and noise anomalies, creating an integrated intelligent inspection system that ensures efficient, safe, and precise pipeline inspection operations.

Results:

Navigation Adaptability and Inspection Efficiency: The system supports seamless switching between indoor laser navigation and outdoor RTK navigation, resolving navigation failures in outdoor pipelines. It can precisely adapt to inspections in equipment rooms, narrow passages, and open-air pipelines, reducing total inspection time by over 80% compared to manual methods and overcoming the limitations of complex environments.

Enhanced Efficiency: The system enables 24/7 automated inspections, supporting real-time data transmission, anomaly tagging, and historical traceability. It replaces manual visual observation and record-keeping, improving coverage and detection accuracy while eliminating safety risks associated with personnel entering narrow or elevated pipeline areas, thereby achieving highly efficient, precise, and intelligent inspection.

Multifunctional Inspection Vehicle for Indoor and Outdoor Pipelines



Teaching and Research Platform for Leaf and Branch Identification

Embedded Intelligent Lifting and Gripping Robot

Agricultural Science Institute's Four-Axis Gantry Sprinkler Truck

VEHICLE MODEL	HT-01 Mini	HT-01	HT-01 MAX	HT-02	HT-03
Dimensions	640*475*345（mm）	930*630*430（mm）	1110*820*835（mm）	1270*756*550（mm）	1500*1350*1250（mm）
Chassis Weight	35KG	85KG	160KG	152KG	300KG
Ground Clearance	66MM	95MM	565MM	180MM	1050MM
Protection Rating	IP54	IP44	IP44	IP44	IP22
Operating Temperature	-10-60°	-10-60°	-10-60°	-10-60°	-10-60°
Battery Type	Lithium-ion battery	Lithium-ion battery	Lithium-ion battery	Lithium-ion battery	Lithium-ion battery
Battery Capacity	24V 20AH	48V 20AH	48V 20AH	48V 40AH	48V 60AH
Battery Endurance	2-3H	2-3H	2-3H	3H	3H
Maximum Speed	1.8M/S	1.8M/S	1.8M/S	1.5M/S	1.5M/S
Vertical Load Capacity	50KG	120KG	120KG	300KG	300KG
External Power Supply	24V/19V/12V	48V/24V/19V/12V	48V/24V/19V/12V	48V/24V/19V/12V	48V/24V/19V/12V
Control Mode	CAN2.0B	CAN2.0B	CAN2.0B	CAN2.0B	CAN2.0B
System Support	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU

PRODUCT ADVANTAGES

- Supports standard CAN communication protocol interfaces
- ROS Supports ROS/ROS2 custom development
- Suitable for both indoor and outdoor use
- Flexible movement, supporting movement in all directions
- Millimeter-level high-precision servo control
- High-precision navigation with an accuracy of ±30 mm

Front-wheel steering, rear-wheel drive / Ackermann model / High-precision servo control / ROS navigation

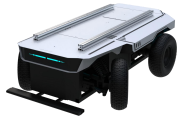
MT SERIES

Ackman switches to the MT Series standard chassis

MT-01/MT-04 Pro/ET-01

Ackman switches to the MT Series standard chassis

The MT series of Ackermann-steered mobile robots feature high load-carrying capacity, enabling them to transport large quantities of cargo or equipment. Designed for both indoor and outdoor use, these robots are capable of operating in complex environments. Equipped with independent suspension and standard control protocols, they support rapid secondary development and are widely used in logistics, warehousing, construction, scientific research, and education.



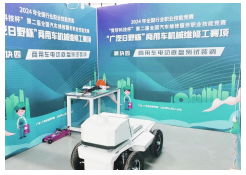
CASE STUDY: Multifunctional Low-Speed Unmanned Vehicle Teaching Platform

Project Overview: The university’s programs in intelligent connected vehicles, autonomous driving, and robotics engineering require the development of an integrated teaching and training platform for multifunctional low-speed unmanned vehicles to support the full teaching process, from hardware fundamentals to autonomous driving algorithm development. Traditional equipment suffers from issues such as closed architectures, limited sensor types, opaque communication protocols, an inability to support both indoor and outdoor navigation, and difficulties in implementing advanced frameworks, making it unsuitable for systematic training. This project employs a modular, disassemblable chassis based on the ROS open-source architecture. Equipped with multiple sensors—including LiDAR, millimeter-wave radar, and cameras—it supports SLAM navigation, the Autoware framework, RTK positioning, and AI vision capabilities. It enables practical training in hardware assembly and disassembly, debugging, software development, and autonomous driving validation, comprehensively meeting the needs of university course experiments, design projects, and scientific research and innovation.

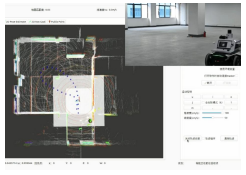
Results:

Educational Coverage and Training Efficiency: A single multifunctional low-speed autonomous vehicle platform supports integrated training in hardware disassembly, sensor debugging, ROS development, SLAM mapping, Autoware autonomous driving, RTK navigation, AI recognition, and intelligent decision-making. It covers the entire educational value chain, significantly shortens autonomous driving validation time, and improves teaching efficiency by over 60% compared to traditional equipment.

Enhanced Efficiency: The platform adopts a fully open-source, modular, and easily configurable standardized design, supporting simultaneous training for multiple student groups and transforming abstract theory into visual, hands-on practice. While increasing teaching capacity and course quality, it reduces maintenance and setup costs by approximately 60% and minimizes issues such as hardware damage, complex wiring, and high debugging risks, enabling instructors and students to focus on core technological research and innovative practice in sensor fusion, path planning, and intelligent decision-making.

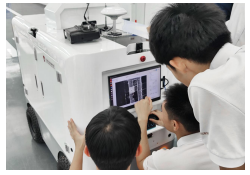


GAC Special-Purpose Vehicles for Teaching and Research Competitions



Indoor 3D Mapping and Pathfinding Navigation

Heavy-Duty Hydrogen Energy Educational Navigation Equipment



Multifunctional Low-Speed Unmanned Vehicle Teaching Platform

VEHICLE MODEL	MT-01	MT-04 Pro	ET-01
Dimensions	1046*688*462（mm)	1535*810*465（mm)	1365*848*488（mm)
Chassis Weight	80KG	110KG	150KG
Ground Clearance	100MM	110MM	120MM
Protection Rating	IP22	IP54	IP22
Operating Temperature	-10-60°	-10-60°	-10-60°
Battery Type	Lithium-ion battery	Lithium-ion battery	Lithium-ion battery
Battery Capacity	24V 40AH	48V 20AH	48V 20AH
Battery Endurance	3H	4H	3H
Maximum Speed	2.5M/S	2.4M/S	20KM/H
Vertical Load Capacity	80KG	200KG	150KG
External Power Supply	24V/19V/12V	48V/24V/19V/12V	48V/24V/19V/12V
Control Mode	CAN	CAN	CAN
System Support	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU

PRODUCT ADVANTAGES

- Supports the standard CAN communication protocol
- ROS Supports ROS/ROS2 custom development
- Maximum speed: 2.4 m/s
- Double-wishbone suspension design
- Long-lasting battery life of up to 6 hours
- High-precision navigation with an accuracy of ±30 mm

Brushless DC servo motors / High-precision servo control / ROS navigation / RTK navigation

GT SERIES

GT Series Standard Chassis with Track Differential

GT-01 Mini/GT-01/GT-02

GT Series Standard Chassis with Track Differential

The GT series of tracked mobile robots feature strong obstacle-crossing capabilities and high stability. By maintaining a large contact area with the ground, they provide excellent support and stability, and their powerful traction makes them well-suited for complex and unstable terrain. As a result, they are widely used in fields such as scientific research, industry, agriculture, the military, and rescue operations.

CASE STUDY:Orchard Tracked Transport Vehicle

Project Overview: This company requires a specialized tracked follow-along transport vehicle for orchards to handle the transportation of harvested fruit. The core functionality involves precisely following harvesters to collect and transport the fruit, thereby reducing physical strain and improving operational efficiency. Traditional orchard harvesting faces challenges such as physically demanding transport work, low transportation efficiency, workers' divided attention, and difficulty navigating complex terrain. This project utilizes a tracked chassis integrated with ultrasonic radar and a UWB tracking system. By wearing a wristband or using a remote control, workers can enable automatic, precise tracking. With a load capacity of 300 kg, the vehicle can immediately collect and transport fruit, creating an intelligent transport solution that combines precise tracking, efficient handling, and adaptability to complex terrain, thereby making orchard harvesting operations both efficient and labor-saving.

Results:

Tracking Accuracy and Transport Efficiency: The orchard tracking tracked transport vehicle uses a combination of UWB technology and ultrasonic radar to precisely track harvesters, automatically maintaining a safe distance without requiring manual control, allowing workers to focus on harvesting.

Improved Efficiency: The system supports adjustable following distances and remote start/stop functions, establishing a stable, all-weather automated transport model that transforms traditional manual carrying and back-and-forth transport into efficient, labor-saving intelligent operations. This solution significantly enhances picking and transport efficiency, prevents work-related injuries caused by prolonged heavy lifting, reduces manual labor costs by approximately 65%, and achieves lightweight, high-efficiency operations in orchards.

Orchard Tracked Transport Vehicle

RTK Satellite Navigation for Crop Transport

Small tracked vehicle for urban patrols

Large-scale crop disinfection sprayer

VEHICLE MODEL	GT-01 Mini	GT-01	GT-02
Dimensions	895*600*406（mm)	1435*900*685（mm)	1980*1455*1495（mm)
Chassis Weight	80KG	310KG	300KG
Ground Clearance	135MM	200MM	970MM
Protection Rating	IP54	IP44	IP22
Operating Temperature	-10-60°	-10-60°	-10-60°
Battery Type	Lithium-ion battery	Lithium-ion battery	Lithium-ion battery
Battery Capacity	48V 20AH	48V 40AH	48V 60AH
Battery Endurance	＞3H	＞3H	2H
Maximum Speed	1.2M/S	1.4M/S	1.2M/S
Vertical Load Capacity	50KG	300KG	200KG
External Power Supply	48V/24V/19V/12V	48V/24V/19V/12V	48V/24V/19V/12V
Control Mode	CAN	CAN	232 serial port
System Support	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU	ROS/WIN/UBUNTU

PRODUCT ADVANTAGES

- Supports the standard CAN communication protocol
- Features include remote control and quick-release battery, among others
- Maximum load capacity: 300 kg
- Supports multi-voltage peripheral modules
- Can navigate complex terrain such as sandy and muddy ground
- Supports satellite navigation and UWB tracking

AMR-Sensor M1

MULTIFUNCTIONAL INTEGRATED LOW-SPEED UNMANNED VEHICLE TRAINING PLATFORM

Front-end steering / Ackermann geometry

High-precision servo control / ROS navigation

SPECIFICATION	
Overall Dimensions	1560*890*1541（mm)
Chassis Weight	200KG
Maximum speed	8KM/H
Operating Temperature	-10-60°
Battery Capacity	48V 40AH
Battery charging time	3H
Bumper bar	Support
Drive/Steering Motor Power	400W*2/400W*1
Vertical load	200KG
Navigation accuracy	±100MM
Navigation method	3D SLAM (Laser Navigation) + RTK Navigation
Hill-climbing ability	10% (at full capacity)
Obstacle Crossing (Vertical Step)	8CM

PRODUCT OVERVIEW

The training platform (AMRSensor-M1) uses its sensing system to detect the road environment, automatically plan a route, and control the vehicle to reach its destination.

Hardware includes LiDAR, millimeter-wave radar, ultrasonic radar, IMU sensors, RTK sensors, vision sensors, autonomous driving processors, displays, and other devices. The software component includes positioning software, perception software, traffic light recognition software, mapping software, global path planning software, local path planning software, control software, driver software, calibration software, and other software. It enables functions such as interface interaction between the vehicle’ s integrated navigation system and LiDAR, joint calibration of vision and LiDAR systems, secondary development of vehicle sensor applications, comprehensive road testing on actual vehicles, and the development and validation of algorithms for the vehicle’ s autonomous driving capabilities. It can be used for educational and practical training tasks involving the installation, debugging, testing, fault diagnosis, and calibration of environmental perception sensors, as well as for teaching and training tasks related to the functional testing of automated driving systems and the collection and mapping of high-definition maps.

PRODUCT FEATURES

Practical ROS Fundamentals

Features a beginner-friendly ROS curriculum designed for those with no prior experience, bridging the gap between theory and hands-on application

3D LiDAR SLAM Mapping and RTK Navigation

Combines LiDAR 3D modeling with RTK dual-mode positioning to enable precise mapping and navigation across all scenarios

Multi-Sensor Coordination

Provides LiDAR-camera calibration solutions to enable multi-source data fusion applications

Sensor Data Management

Supports sensor data subscription within the ROS environment and accurately interprets chassis control commands

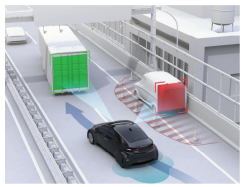
High-Precision Navigation

Centimeter-level LiDAR positioning combined with adaptive obstacle avoidance algorithms to ensure navigation accuracy

Advanced Autoware Implementation

Analyzes the autonomous driving framework and completes practical exercises in point cloud processing and multi-sensor fusion

Research, Experimentation, and Development



Simulation test verification

Sensor calibration test

Autonomous driving course

TG-CHBW-B2

COMPREHENSIVE TEST PLATFORM FOR CHASSIS ELECTRONIC CONTROL SYSTEMS

SPECIFICATION	
	Wire-controlled steering system
Contact Information	CAN2.0
Motor rated operating voltage	12V
Motor power	400W
Camera	5 single-lens cameras (DF100, 1280x720p resolution)
Steering control accuracy	±3°
Control Method	wire-controlled
	Computing Platform
CPU memory	⩾16G
GPU video memory	⩾6GB
Memory bus width	192bit
port	1×DC（55*25）19V

PRODUCT OVERVIEW

By integrating components such as the by-wire steering system, by-wire braking system, and by-wire drive system, the platform provides a clear demonstration of the composition, structure, and operating principles of typical by-wire chassis systems and their components. The platform is also equipped with open-source simulation software and supports hardware-in-the-loop (HIL) simulation capabilities, enabling bidirectional interaction and communication between hardware and simulation software. It is designed for practical training tasks such as the assembly, debugging, testing, calibration, and diagnosis of chassis by-wire systems for intelligent connected vehicles.

PRODUCT FEATURES

Analysis of the CAN Communication Protocol

In-depth Analysis of the CAN Communication Protocol: Efficiently Reading Chassis Electronic Control Unit Data

Wire-controlled Steering Training

Implement steering system calibration, data analysis, and fault diagnosis and troubleshooting

Wire-Controlled Drive Training

Complete drive system calibration, troubleshooting, and data analysis and debugging

Wire-Controlled Braking Training

Supports brake system calibration, data analysis, and troubleshooting

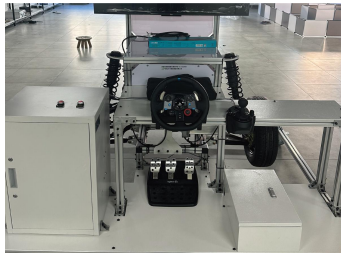
Online Simulation Testing

Provide online simulation of the chassis electronic control system to enhance the professionalism of practical training

System Control Optimization

Implementation of Comprehensive Control Debugging and Performance Optimization for the Chassis Electronic Control System

CASE STUDIES



SeaRobot-01

FOUR-WHEELED MOBILE INSPECTION ROBOT WITH DIFFERENTIAL DRIVE

Front-end steering / Ackermann geometry

High-precision servo control / ROS navigation

SPECIFICATION	
Overall Dimensions	1030*615*955(mm)
Chassis Weight	90KG
Protection rating	IP54
Operating Temperature	-10-60°
Battery Capacity	48V 40AH
Battery charging time	3H
Battery working hours	<3H
Motor Power	400W*4
Vertical load	80KG
Climbing a hill	15% (servo-assisted hill hold)
Navigation method	Laser Navigation (3D SLAM)
Navigation accuracy	±50MM

PRODUCT OVERVIEW

The SeaRobot 01 Series is an all-terrain, indoor-outdoor universal inspection robot. Designed specifically for commercial inspection scenarios, this four-wheel differential drive mobile platform is equipped with a multi-line LiDAR navigation system and a pan-tilt camera. It supports infrared illumination, night vision, and low-latency HD video transmission, as well as adjustable pan-tilt angles. It is suitable for complex scenarios such as campus patrols, warehouse security, and facility maintenance.

The vehicle features four independent brushless servo motors, integrated with an ARM-based Vehicle Control Unit (VCU), enabling all-terrain adaptive obstacle crossing and centimeter-level obstacle avoidance accuracy. Laser obstacle avoidance (with dynamic adjustment between 10–30 cm) combined with physical protection from bumpers ensures safe patrols in crowded areas and low-light nighttime environments. An integrated smart recharge module supports automatic return-to-base when battery levels are low. Optional sensors—including a 2D radar for low-profile obstacle detection and sensors for wind speed, temperature, and humidity—can be quickly added via modular interfaces to expand functionality, meeting customized requirements such as fire early warning and environmental monitoring. With all-weather operational capability, multimodal data collection, and an open, compatible architecture at its core, the system provides a cost-effective inspection solution for smart cities and industrial parks.

OPEN-SOURCE TECHNICAL SUPPORT

Modular Functionality Expansion

With an API interface, it allows for quick integration of array radars, gas sensors, and other components, enabling flexible adaptation to custom scenarios such as fire early warning and environmental monitoring.

User-friendly interface

It supports LAN connectivity and provides mobile apps for both platforms, enabling device configuration, status monitoring, and task prioritization, thereby lowering the learning curve.

All-weather security inspection

This pan-tilt camera features built-in infrared illumination and night vision, supports multi-angle adjustment and 1080p low-latency video transmission, and is equipped with laser obstacle avoidance and a collision-proof bumper to ensure safe operation in nighttime and low-light conditions.

High-precision autonomous navigation

A pure laser navigation system based on 3D SLAM that supports precise point-to-point navigation indoors and outdoors, with a repeatability accuracy of 5 cm, and is suitable for indoor and outdoor environments such as campuses and server rooms.

Multi-map, cross-scenario navigation

Supports saving multiple maps and one-click switching; allows for presetting electronic fence permissions by floor or workshop, enabling seamless transitions between different work scenarios and accommodating the need for switching between diverse spaces such as industrial parks and server rooms.

Intelligent Battery Management

Automatic return to charge when battery is low + task resume functionality: The system can be configured to return to the charging station automatically when the battery is low, and resume the remaining tasks once fully charged. Combined with time-based task scheduling, this ensures efficient, round-the-clock operation.

CMR-D1 Pro

DUAL-WHEEL DIFFERENTIAL-DRIVE MOBILE COMPOSITE ROBOT

Spinning in place / Differential control

High-precision servo control/laser navigation

SPECIFICATION	
Overall Dimensions	730*460*260（mm）
Chassis Weight	46KG
Maximum speed	1.5M/S
Operating Temperature	-10-60°
Battery Capacity	24V 40AH
Battery charging time	<3H
Navigation Protocol	MQTT
Motor power	150W*2
Vertical load	120KG
Navigation accuracy	±30MM
Navigation method	Point-to-point, fixed route, trajectory, etc.
Turning radius	Rotate in place (0°)
Auxiliary positioning accuracy	±10MM

PRODUCT OVERVIEW

The CMR-D1 Pro is a multifunctional, embodied intelligent collaborative robot based on an upgraded version of the DT-01 Pro S1 chassis. It integrates a 6-axis collaborative robotic arm (with ±1 cm repeatability) and a 950 mm vertical-travel electric lift table, and is compatible with high-precision laser navigation (with ±2–3 cm positioning accuracy) and a 3D vision system.

The chassis retains a 120 kg load capacity and dual obstacle avoidance systems (laser + collision-proof rails). The new robotic arm is constructed from lightweight aluminum alloy and ABS, with a flexible gripper or electromagnetic suction cup mounted at the end effector. Combined with an RGB-D depth camera and vision algorithms, it enables centimeter-level object recognition and dynamic obstacle avoidance compensation. The lifting platform supports precise vertical movement at 250 mm/s, expanding the operational workspace to 600 mm. The navigation system integrates an improved SLAM algorithm to enable dynamic obstacle avoidance in dense environments (response time < 0.5 seconds). The robotic arm is compatible with Python and C++ development environments, allowing users to program via a visual interface or deeply customize arm trajectories and grasping strategies. With open ROS interfaces and modular navigation protocols, it achieves a 50% increase in overall efficiency and a 30% reduction in operational costs compared to the educational version CMR-D1, establishing itself as a core automation solution that integrates “space, precision, and payload” in smart factories.

OPEN-SOURCE TECHNICAL SUPPORT

Laser-based mapping and obstacle avoidance

Supports large-scale indoor mapping and enables dynamic, intelligent obstacle avoidance

Vertical electric lift

250 mm/s lifting speed, 950 mm travel range for flexible expansion, suitable for three-dimensional work spaces

Closed-loop processing of multi-source data

Provides real-time feedback on IMU, odometer, and voltage data to ensure stability

Robotic Arm Gripping Control

Features a robotic arm grasping demo (e.g., fruit picking) and provides an open ROS standard interface

High-precision navigation and positioning

Positioning accuracy of ±5 cm, with support for intelligent path planning

Open-source license compatibility

Open-source ROS navigation and mapping algorithms, with a variety of control interfaces available

CMR-D2 Pro

DUAL-WHEEL DIFFERENTIAL-DRIVE MOBILE COMPOSITE ROBOT

Spinning in place / Differential control

High-precision servo control/laser navigation

SPECIFICATION	
Overall Dimensions	730*460*260（mm）
Chassis Weight	46KG
Maximum speed	1.5M/S
Operating Temperature	-10-60°
Battery Capacity	24V 40AH
Battery charging time	<3H
Navigation Protocol	MQTT
Motor power	150W*2
Vertical load	120KG
Navigation accuracy	±30MM
Navigation method	Point-to-point, fixed route, trajectory, etc.
Turning radius	Rotate in place (0°)
Auxiliary positioning accuracy	±10MM

PRODUCT OVERVIEW

The CMR-D2 Pro is based on the DT-01 Pro S1 two-wheeled differential drive chassis. It integrates dual 6-axis biomimetic robotic arms (with ±0.8 mm repeatability), a 950 mm electric lift platform, and a stereo RGB-D depth camera. Designed specifically for universities and research institutions, it focuses on research into collaborative robot control and intelligent perception.

Its dual robotic arms employ a master-slave hybrid force-position control strategy, supporting precision assembly with 0.5mm accuracy and asynchronous handling of 1.5kg loads per arm. Flexible grippers (3–20 cm adaptive opening/closing range) combined with electromagnetic suction cups enable multi-modal grasping experiments, while a lifting platform (250 mm/s precision) integrated with a stereo camera facilitates vertical operations such as tiered fruit picking in orchards and three-dimensional palletizing in warehouses. In research applications, the system provides open ROS interfaces and Python/C++ development environments, pre-loaded with dual-arm collaborative path planning algorithms, vision models, and Gazebo virtual simulation datasets. Combined with high-speed cameras and mechanical analysis tools, it enables research into grasping damage mechanisms and dynamic obstacle avoidance (response time <0.3 seconds). Single-line LiDAR integrated with IMU inertial compensation enables S-shaped trajectory planning in narrow 0.8m lanes, achieving an 80% efficiency increase over single-arm versions. This provides universities and research institutions with a full-chain “perception-decision-execution” research platform, driving innovation and breakthroughs in the field of intelligent robotics.

OPEN-SOURCE TECHNICAL SUPPORT

Laser-based mapping and obstacle avoidance

Supports large-scale indoor mapping and enables dynamic, intelligent obstacle avoidance

High-precision navigation and positioning

Positioning accuracy of ±5 cm, with support for intelligent path planning

Open Protocol Interfaces

Provides navigation and robotic arm interfaces, and supports open ROS standard communication protocols

Vertical electric lift

250 mm/s travel speed, 950 mm travel range with flexible extension

Closed-loop processing of multi-source data

Provides real-time feedback on IMU, odometer, and voltage data to ensure stability

Dual-Robotic Arm Control

Built-in robotic arm grasping demonstration (e.g., fruit picking, object sorting), suitable for experimental development such as dual-arm coordination.

PARTNERSHIPS AND TECHNICAL SERVICES

Tech Collaboration & Customized Service Empowering Intelligent Mobility

HUIXING TECHNOLOGY: AREAS OF COOPERATION AND PARTNERS

THE FIELD OF SENSOR HARDWARE

- LiDAR
- Servo motor
- Industrial Computer
- Depth Camera
- Lifting module
- Robotic arm body
- Power Supply Module
- Communication Module

万集科技 WANJI TECHNOLOGY · realman 睿尔曼智能 · Rockchip 瑞芯微电子 · CATL 宁德时代 · robosense 速腾聚创 · 奥比中光 ORBBEC · FAIRINO

ROBOTICS SECTOR

- Smart Warehousing
- Medical Transport
- Security Patrol
- Educational Research
- Embodied intelligence
- Agricultural Support
- Retail Services
- Sanitation and Cleaning

中建八局 CHINA EIGHTH CONSTRUCTION · 北京大学 PEKING UNIVERSITY · 华南理工大学 South China University of Technology · TBL The Better Logistics · TARS 它石智航 · 中国中车 CRRC · 绿晶服务 LVJINGSERVICE

HIGHLIGHTS OF TECHNICAL SERVICES AND COLLABORATION

Customized Solutions and Full-Cycle Services

The GT series of tracked mobile robots feature strong obstacle-crossing capabilities and high stability. By maintaining a large contact area with the ground, they provide excellent support and stability, and their powerful traction makes them well-suited for complex and unstable terrain. As a result, they are widely used in fields such as scientific research, industry, agriculture, the military, and rescue operations.

Technical Training and Modular Expansion

We design customized training programs covering operation, debugging, and secondary development; we support sensor integration, feature upgrades, and system integration to meet customers' business upgrade needs.

Comprehensive Product Portfolio and Proprietary Technology Advantages

With a comprehensive range of robotic products covering a wide array of applications, we offer a one-stop shopping experience; our proprietary navigation and obstacle-avoidance algorithms, combined with seamless hardware-software integration, ensure operational precision.

Flexible Collaboration and Long-Term Empowerment

We offer a variety of collaboration models, including product sales, custom development, and industry-academia-research partnerships, to meet the diverse needs of our clients. Our cost-effective solutions help clients reduce costs and improve efficiency, while our long-term technical support facilitates their transition to smart technologies.

Guided by the philosophy of "Technology Empowerment, Mutual Success with Customers," the company provides professional and flexible robotics solutions to clients across various industries, working together to build a new ecosystem for smart industries.


Continuous Innovation