集萃智造
JITRI INTELLIGENT MANUFACTURING

IIMT-THR-001

Tomato harvesting robot



Dual-mode high efficiency, 4h battery running

Automated continuous operations to replace manual work

Our tomato harvesting robot offers both cluster and single-fruit picking options, designed with two sets of modules and a 6-axis collaborative robotic arm for maximum versatility. It delivers a picking recognition rate of ⩾90% and an efficiency of 20–50 kg/h (varies by crop growth), with over 4 hours of continuous operation. While its hourly output is slightly lower than manual labor, its long-lasting, fully automated performance ensures it matches the total productivity of human pickers.

Machine features

1. Dual-purpose power chassis for land and rail, which can realize autonomous switching between flat ground and rail.
2. With autonomous navigation and obstacle avoidance functions.
3. Multi-arm collaborative operation, the picking efficiency can reach 20-50kg/h.
4. It can carry out tomato picking operations of grain picking/bunch picking, and has autonomous planning and positioning functions for tomato target picking.
5. It can be equipped with intelligent devices such as inspection and transportation to complete different functional iterations

String picking



Grain picking



Picking robot configuration

Mobile robot | Remote controller | Interface module | Communication antenna

USB to serial cable | Network equipment | Intel Realsense D435i | 3D LiDAR | Charger

Inertial sensor (IMU) | Industrial computer | Camera mounting (end of robotic arm)

Manufacturer

Jiangsu Jitri Intelligent Manufacturing Technology Institute Co., Ltd

Customer Service Hotline

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Main parameters

Model		Parameters
Basic	Dimension	1520*840*1300mm
	Track size	Track center distance(550mm), Track diameter(50mm)
	Picking height	500-1500mm
	Track changing method	Automatic/remote control
	Deadweight	300kg
	Tire	AGV Polyurethane wheels
	Drive mode	2 wheel drive
	Motor	Servo Motor
	Steering	Differential steering
	Brake	Motor holding brake
	Navigation	3D Laser SLAM
Safety	Collision Detection	Radar obstacle avoidance
	Emergency Stop	Emergency stop button
Movement	Rated speed	1m/s
	Gradeability	5°
	Obstacle clearance height	1cm
	Positioning accuracy	±3cm
	Minimum channel width	800
	Driving Directions	Forward, backward, rotate 360° on the spot
	Computer host	Intel Core 10th Generation i7-10710U six cores and twelve threads, maximum turbo frequency 4.7GH, 32GB memory, 512GB solid state drive
	Multi-line laser radar (Rayshen C16)	3D 16 lines
		Range 70m-150m (target reflectivity 20%)
		Accuracy ±3cm
		Horizontal viewing angle 360°, vertical viewing angle ±30°
	Gesture sensor	9-axis (3-axis accelerometer + 3-axis gyroscope + 3-axis magnetometer)
	IMU	
	Network	5G wireless router: supports 3G/4G/5G, WIFI supports 802.11b/g/n/ac
	Depth Camera (D435i)	RGB resolution 1920x1080, frame rate 30fps
		Depth resolution 1280x720, FOV 69°x42°
Interface	Communication	485, CAN
	Remote control	2.4GHz, Remote control distance ≤200m
Battery	Charging time	2-4h
	Run time	2-4h
	Battery Materials	Lithium battery
	Nominal voltage	48V (36V～54.6V)
	Capacity	1440Wh(48V 30Ah)
	Charging method	Wired/Wireless
Environment	Place	Facility Agriculture
	Temperature	-10℃ ～ 60℃ (No condensation)
	Humidity	25~85% (No condensation)
Robotic Arm	Repeat positioning accuracy	±0.02mm
	Maximum joint speed	180°/s
	Maximum terminal speed	1m/s
Gripper	Repeatability	±0.5
Performance	Picking efficiency	20-50kg/h
	Recognition frame rate	30FPS
	Recognition accuracy	95%
	Grabbing success rate	85%