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› Yahboom Rosmaster M1 Smart Car with Raspberry Pi 5-8GB Instruction Manual

Yahboom ROSMASTER-M1

Yahboom Rosmaster M1 Smart Car with Raspberry Pi 5-8GB Instruction Manual

Model: ROSMASTER-M1

INTRODUCTION

The Yahboom Rosmaster M1 is an advanced smart car designed for robotics education and development, featuring a Raspberry Pi 5-8GB. It integrates multi-modal AI vision, large language models, SLAM navigation, and programming capabilities, making it an ideal platform for learning and experimenting with AI and robotics. This manual provides essential information for assembly, operation, and maintenance.

PRODUCT FEATURES

- **Flagship Performance:** Choose from 4 master controllers (Raspberry Pi 5, Jetson Nano B01, RDK X5, Orin Nano 8GB SUPER). High-performance RDK X5 and Orin Nano enable smooth visual autonomous driving and road network planning simultaneously, achieving 22-25fps operation.
- **Autonomous Driving Technology:** Innovatively integrates two core technologies: high-performance GPU-based visual autonomous driving (lane keeping + road sign recognition) and ROS 2-based road network planning. This enables realistic driving simulations and practical learning for industrial applications.
- **AI Large Model Integration:** Deeply integrates AI large language models for intelligent voice interaction, supporting Xunfei Spark/OpenRouter. Pre-installed SLAM sandbox navigation function with AI large model integration allows immediate autonomous driving experience without prior map construction (map sold separately).
- **High-Performance Hardware:** Utilizes Mecanum wheels for realistic driving, supporting autonomous driving technology development through road sign and signal recognition. Equipped with Nuwa-HP60C depth camera, TminiPlus LiDAR/SLAM C1 LiDAR, and high-torque 520Nm motors. Large capacity battery extends driving time by 170%, and large TF card/SSD supports multi-task demands.
- **Rich Learning Resources:** Includes full-stack AI large model specific courses and detailed robotics teaching materials. Yahboom provides professional technical support, guiding users from basic development board large models to robot applications, enabling deep learning of ROS and AI robotics technology from scratch.

SETUP GUIDE

1. Unboxing and Component Identification

Carefully unpack all components from the box. Verify that all items listed in the packing list are present and undamaged. Refer to the image below for a visual guide to the components.

出荷リスト												
ROSMASTER M1 出荷リスト												
標準版アクセサリ												
上位版アクセサリ												
ROSメインコント ロール	RDK X5 8GB版ア クセサリリスト											
	Jetson NANO SUB 4GB版アクセ サリリスト											
	Jetson Orin NANO SUPER 8GB版アクセ サリリスト											

Image: Rosmaster M1 packing list. This image displays the various components included in the Rosmaster M1 kit, such as the main robot chassis, Raspberry Pi board, cameras, LiDAR, battery, and other accessories.

2. Hardware Assembly

Follow the detailed assembly instructions provided in the included physical manual or online resources. Key steps typically involve:

1. Attach the Mecanum wheels to the motor mounts.
2. Mount the Raspberry Pi 5-8GB (or other chosen master controller) onto the main chassis.
3. Connect the ROS robot control board.
4. Install the camera (2MP HD Camera PTZ or Nuwa-HP60C Depth Camera) and LiDAR (T-Mini Plus).
5. Connect the AI large model voice module and speaker.
6. Install the 6000mAh battery pack.

AI大規模モデル融合SLAMナビゲーション
自動操縦大規模モデル融合
意図推定 / シーン理解
音声対話 / インテリジェントナビゲーション

Detected a decrease in inventory of yellow goods, please increase inventory

マルチモーダル大規模モデル
スケーラブルなRAG知識ベース
大規模ビジュアル言語モデル
大規模テキスト言語モデル
バイモーダル推論アーキテクチャ
動的フィードバック推論

LiDAR高精度認識
360°全方向認識
動的障害物回避
道路網計画
定点ナビゲーション
マッピングナビゲーション
経路計画

最高レベルのハードウェア
JETSON/RPI
RDK X5 メインコントロール
6000mAh バッテリーパック
2MP HD カメラ PTZ
AI 大型モデル音声モジュール
メカナムホイールシャーシ
オールアルミ合金ボディ

3Dビジョン用3D深度カメラ
奥行き距離/高さ/体積計算
3D実世界マッピング
深層エッジ検出
3D点群認識

AIビジョンテクノロジー
視覚的自動運転/マシンビジョン
Mediapipe / OpenCV / YoLov11

詳細なコースとコード
あらゆる段階の初心者からエンジニアまで、あらゆる学習ニーズに対応

Image: Rosmaster M1 exploded view. This diagram illustrates the various components of the Rosmaster M1 robot and their relative positions for assembly.

3. Software Configuration

The Rosmaster M1 typically comes with pre-installed software, but updates or specific configurations may be required. Refer to the official Yahboom website for the latest software images and setup guides.

- Ensure the operating system (e.g., Ubuntu with ROS2 Humble) is correctly installed on your master controller.
- Verify all drivers for cameras, LiDAR, and motors are properly configured.
- Access the robot's interface via a computer or mobile device for initial testing and calibration.

OPERATING INSTRUCTIONS

1. Powering On and Initial Connection

Connect the fully charged battery to the robot. Power on the master controller. Establish a connection via Wi-Fi or Ethernet to your control device (computer, smartphone).

2. Control Methods

The Rosmaster M1 supports multiple control methods:

- **Mobile App (iOS/Android):** Use the dedicated mapping and navigation app for intuitive control.
- **Computer Control:** Utilize a computer interface for advanced programming and control.
- **USB Wireless Remote (Standard):** For direct manual control.



Image: Rosmaster M1 control methods. This image shows the robot being controlled via a smartphone app, a laptop, and a USB wireless gamepad.

3. Autonomous Driving and Navigation

The Rosmaster M1 excels in autonomous navigation tasks. It can perform:

- **SLAM Mapping and Navigation:** Utilizes LiDAR and camera data to build maps and navigate complex environments.
- **Visual Autonomous Driving:** Recognizes lane lines, road signs, and traffic signals for realistic driving scenarios.
- **AI Large Model Integration:** Enables intelligent voice commands for navigation and task execution.



Image: Rosmaster M1 autonomous driving. This image depicts the robot navigating a simulated road environment, demonstrating road sign detection, lane keeping, automatic parking, and steering decision capabilities.

4. AI Vision and Interaction

Leverage the robot's AI capabilities for object recognition, tracking, and interactive tasks.

- **Object Detection (YOLOV11):** Identify and classify various objects in real-time.
- **Gesture Recognition:** Control the robot using hand gestures.
- **Voice Interaction:** Engage with the robot using natural language commands.



Image: Rosmaster M1 AI image recognition. This image showcases the robot's ability to perform various AI image recognition tasks, including human body recognition, gesture recognition, fingertip recognition, human skeleton recognition, 3D detection, 3D face detection, color recognition, and AR vision.

MAINTENANCE

- **Cleaning:** Regularly clean the robot's chassis, wheels, and sensors with a soft, dry cloth. Avoid using liquids directly on electronic components.
- **Battery Care:** Charge the battery fully before storage if not used for extended periods. Do not overcharge or completely discharge the battery. Store in a cool, dry place.
- **Software Updates:** Periodically check the Yahboom official website for software and firmware updates to ensure optimal performance and access to new features.

- **Component Inspection:** Inspect all connections and components for looseness or damage before each use. Tighten screws as needed.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Robot does not power on.	Battery not charged or improperly connected.	Ensure battery is fully charged and securely connected. Check power switch.
No connection to control device.	Incorrect Wi-Fi settings or network issues.	Verify Wi-Fi credentials. Restart robot and control device. Check network status.
Mecanum wheels not moving correctly.	Motor connection issues or software calibration needed.	Check motor wiring. Perform motor calibration through the software interface.
Camera/LiDAR not detecting environment.	Sensor obstruction or driver issues.	Clear any obstructions from sensors. Verify sensor drivers are installed and running.
Voice commands not recognized.	Microphone issue or AI model not active.	Ensure microphone is clear and connected. Check AI large model status in software.

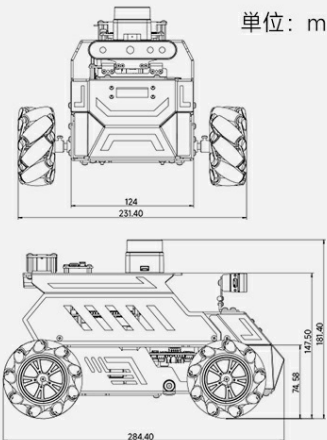
SPECIFICATIONS

Component	Detail
Master Control Options	RDk X5 / Raspberry Pi 5 / Jetson Nano B01 / Jetson Orin Nano SUPER
System Version	RDk X5: Ubuntu 22.04 + ROS2 Humble Raspberry Pi 5: RPi OS + Docker + ROS2 Humble Jetson Nano B01: Ubuntu 18.04 LTS + Docker + ROS2 Humble Jetson Orin Nano SUPER: Ubuntu 22.04 LTS + ROS2 Humble
Programming Language	Python
Input Devices	Nuwa-HP60C Depth Camera, 2MP HD Camera PTZ, T-Mini Plus LiDAR, AI Large Model Voice Module, USB Wireless Handle
Output Devices	2MP HD Camera (PTZ), 520 Motor x4, OLED Display, Buzzer, Speaker
Motor Solution	1:56 High Torque Encoder Motor x4
Body Material	Anodized sandblasted aluminum alloy
Battery Life	3 hours (battery life varies by version)
Power Solution	12.6V 6000mAh battery pack
Power Interface	DC 4.0*1.7 power interface

Component	Detail
Remote Control Method	PC computer, wireless handle, mapping navigation APP (iOS/Android)
Network Communication	Wi-Fi network (LAN/AP)
Safety Protection	Overcharge/overdischarge/overcurrent/short circuit/low voltage protection
Dimensions	284.4 x 231.4 x 181.4 mm
Weight	2.68 - 2.74 kg (weight varies by selected version)

製品パラメータ

単位: mm



Top view dimensions: 124, 231.40
Side view dimensions: 181.40, 284.40

製品名	ROSMASTER M1 AI大型モデルROS2ロボット		
マスターコントロール	RDK X5/RPI 5/Jetson Nano B01/Jetson Orin Nano SUPER	プログラミング言語	Python
システムバージョン	RDK X5: Ubuntu 22.04 + ROS2 Humble	ストレージ	RDK X5: 128GB TFカード
	RPI 5: RPI OS + Docker + ROS2 Humble		RPI 5: 128GB TFカード
	Jetson Nano B01: Ubuntu18.04 LTS + Docker + ROS2 Humble		Jetson Nano B01: 128GB Uディスク
	Jetson Orin Nano SUPER: Ubuntu22.04 LTS + ROS2 Humble		Jetson Orin Nano SUPER: 256GB SSD
入力	Nuwa-HP60C デブスカメラ、2MP HDカメラ PTZ、T-mini Plus LiDAR、AI大型モデル音声モジュール、USBワイヤレスハンドル、9軸IMUセンサー、モーター速度コードディスク	出力	2MP HDカメラ (PTZ)、520メタルモーター×4、OLEDディスプレイ、ブザー、スピーカー
サーボソリューション	高品質9Gデジタルサーボ *2	電源インターフェース	DC 4.0×1.7電源インターフェース
モーターソリューション	1:56 高トルク520エンコーダーメタルモーター *4	リモートコントロール方式	PCコンピューター、ワイヤレスハンドル、マップナビゲーションアプリ (iOS/Android)
ボディ材質	酸化サンドブラストアルミ合金	通信方式	WiFiネットワーク (LAN/AP)
バッテリー駆動時間	3時間 (バッテリー駆動時間は状態によって異なります)	安全保護	過充電/過電流/過放電/短絡/低電圧/過電圧保護
電源ソリューション	12.6V 6000mAhバッテリーパック	組み立て後の重量	2.68 ~ 2.74kg (重量は選択したバージョンによって異なります)
寸法	標準/上位版: 284.4×231.4×181.4mm		

Image: Rosmaster M1 product parameters. This image provides a detailed diagram of the robot's dimensions and a table summarizing its key specifications.

SUPPORT AND RESOURCES

For further assistance, detailed tutorials, and code examples, please refer to the following resources:

- **Official Download Page:** yahboom.net/download - Access software, firmware, and documentation.
- **Email Support (General):** amazon@yahboom.com
- **Email Support (Technical):** support@yahboom.com

Need help?
We are standing by.

 yahboom.net/download
 amazon@yahboom.com
 support@yahboom.com

Image: Yahboom support contact information. This image displays the Yahboom logo and contact details for support, including a download link and two email addresses.

Tutorials and Code

Yahboom provides extensive tutorials and code examples to help users learn and develop with the Rosmaster M1. These resources cover various topics from basic setup to advanced AI applications.



Image: Rosmaster M1 tutorials and code. This image shows a list of available tutorials and code categories, including AI Model Basics, MediaPipe Visual Course, Depth Camera Vision Course, LiDAR Course, and more.



Image: Rosmaster M1 video tutorials. This image displays a grid of checkboxes indicating the availability of practical video tutorials for various functionalities and learning modules.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

Open the live page

<https://manuals.plus/asin/B0G48KVLX5>

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