Smart Video RC Robot Car

1. Key Properties

Arduino UNO / Raspberry PI4B 2GB、4GB

480P USB Camera

Ultrasonic Sensor

Infrared Sensor

Input Voltage 7.4 V

2. Features

Four-wheel drive	Robot car used four-wheel driving, capable of rotating 360 degrees and high dexterity.
WIFI wireless remote control	The robot car will establish WiFi hotspot after power on. Mobile phones and tablets can be connected to WIFI and controlled through APP.
Real-time video transmission	Robot car transmits the real-time images taken through camera to APP and computer software through WiFi.
PTZ camera control	The PTZ camera can control the horizontal and vertical rotation through mobile APP and computer software to realize the first-person function.
Ultrasonic obstacle avoidance	Use the ultrasonic ranging function to control the robot car to stop or avoid obstacles.
Infrared line follow	Robot car recognizes the black line arranged on the ground through the infrared photoelectric sensor to implement the line follow function.
Camera visual line follow	Robot car recognizes the black line arranged on the ground through the camera Image to implement the line follow function.
Path planning	The robot car will follow the path which planning on mobile phone app or computer soft.

3. Specifications

Robot Car Body Specification	
Dimension	255*160*160mm
Weight	850g
Material	High-strength PCB chassis
Driving Mode	4-Wheel Drive
Speed	0.3m/s
Remote Control	IOS/Android APP、PC Software

Motherboard Specification	
Model	Raspberry PI 4B
Processor	Broadcom BCM2711, Quad-core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
Memory	2GB or 4GB LPDDR4 (depending on model)
Connectivity	2.4 GHz and 5.0 GHz IEEE 802.11b/g/n/ac wireless LAN, Bluetooth 5.0, BLE Gigabit Ethernet 2 × USB 3.0 ports 2 × USB 2.0 ports.
GPIO	Standard 40-pin GPIO header
Video & sound	2 × micro HDMI ports (up to 4Kp60 supported) 2-lane MIPI DSI display port 2-lane MIPI CSI camera port 4-pole stereo audio and composite video port
Multimedia	H.265 (4Kp60 decode); H.264 (1080p60 decode, 1080p30 encode); OpenGL ES, 3.0 graphics
SD card support	Micro SD card slot for loading operating system and data storage
Input power	5V DC via USB-C connector (minimum 3A1) 5V DC via GPIO header (minimum 3A1) Power over Ethernet (PoE)−enabled (requires separate PoE HAT)
Environment	Operating temperature 0~50ºC

Driver board Specification	
Chip	74 series level isolation chip L298P high-power motor driver chip (4A, 46V input range)
Dual-channel DC-DC power supply	SY8120ABC (2A output, 18V input range) LM2596s-adj (3A output, 40V input range)
4-way led	1 x Red power indicator 3 x Blue LED connected to GPIO
8-way servo control interface	Power supply by motherboard Directly drive 2-DOF PTZ
5-way infrared sensor interface	For track, line follow, obstacle avoidance functions

1-way ultrasonic sensor interface	For ranging, obstacle avoidance, maze functions
GPIO	1 x UART 1 x IIC 3 x LED pin
Power supply interface	6-14VDC plug for main power supply 2PIN power terminal for motor (less than 40V)
Scalability	Reserve space for an ID_ EEPROM placement

Servo Specification	
Dimension	23*23.2*12mm
Weight	9±0.5g
Working Voltage	4.8-6V
Torque	≥0.37kgf·cm at 6.0V
Rotation angle	0-180°
Rotation speed	≤0.11sec/60° at 6.0V
Locked-Rotor Current	≤800mA at 6.0V
Plug type	JR / FUTABA

Ultrasonic Sensor Specification	
Model	HC-SRO4
Dimension	40*20*13mm
Working Voltage	5V
Working Voltage	15mA
Working Frequency	40Hz
Angle Accuracy	≤15°
Trigger Signal	10us TTL pulse

Infrared Sensor Specification	
Model	XR-IR
Dimension	17mm diameter 288mm cable length
Working Voltage	5V
Working Voltage	10mA
Measure Range	2-35cm
Material	Polymer
Output Type	Digital Sensor

4. Package List

The robot car is shipped in an unassembled state. Please refer to the attached tutorial for the assembly method, The package list as follow:

Accessories	Quantity
Raspberry Pi Motherboard	1
Drive Board	1
PCB Chassis Kit with Motor	1
PTZ kit	1
9G Servo	2
Webcam	1
Ultrasound Sensor	1
Infrared Sensor	2
USB Data Cable	1
4P Dupont Line	1
Hardware Tool Package	1
SD Card & Card Reader	1
Manual	1

*note: 1.The product does not contain lithium batteries.

      2.The robot car is suitable for 7.4V lithium battery.

5. Product Document

Provide paper books, electronic files and source code to assist learning. Provide supporting training textbooks and courses, covering from getting started with Raspberry Pi to fully grasping IoT development and artificial intelligence technology. Teaching features include: wireless remote control technology, single-chip technology, and IoT sensor application technology. The code is all open source and supports secondary Development.