Yahboom Bit Robot

Yahboom Micro:bit Robot Car Kit Instruction Manual

Model: Bit Robot

1. OVERVIEW

The Yahboom Micro:bit Robot Car Kit is an educational STEM toy designed to introduce users to programming and robotics. This kit combines the BBC Micro:bit board (not included) with various learning components and expansion boards, allowing for a hands-on experience in building and programming a functional robot car. The vehicle features a compact design and is assembled using screws and anti-reverse sockets for simple and safe construction.

Key functionalities include tracking, ultrasonic obstacle avoidance, following, light discoloration, singing, and music playback. It supports JavaScript graphical programming, Python, and other Micro:bit programming methods, with over 30 experimental courses available.
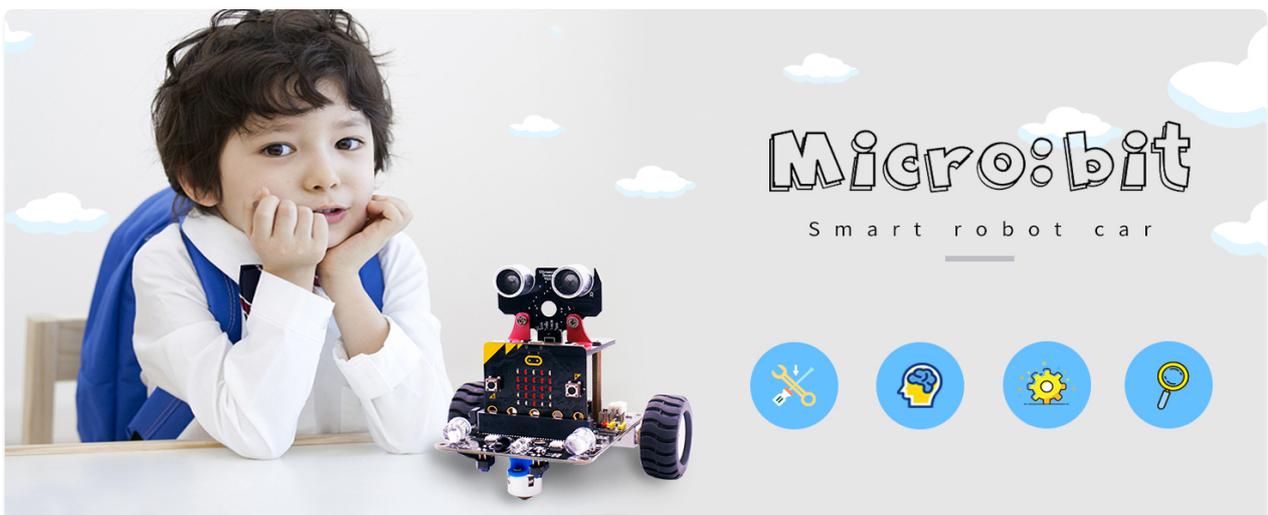

Image: The Yahboom Micro:bit Robot Car Kit, showcasing the assembled robot with the Micro:bit board, highlighting its integration with learning and development tutorials.

2. PACKAGE CONTENTS

Please verify all components are present upon opening the package. The kit includes the following items:

- Expansion Board (1)
- Vertical Ultrasonic Module (1) + 4-pin Cable (1)
- Aluminum Alloy Bracket (1)
- Motors (2) + Motor Brackets (2)
- Ultrasonic Acrylic Board (1)
- Tires (2)
- Micro USB Data Cable (1)
- Infrared Remote Control (1)
- Screwdriver (1)
- Track Map (1)
- M3*40 Copper Pillars (4)
- Universal Wheel Bracket (1)
- Universal Wheel (1)
- Lithium Battery (1)
- Battery Velcro (2)
- Instruction Manual (1)
- Screw Nut Package (1)
- Advanced Packing Box (1)

Note: The BBC Micro:bit board (v1 or v2) is NOT included and must be prepared separately for the robot to function correctly.
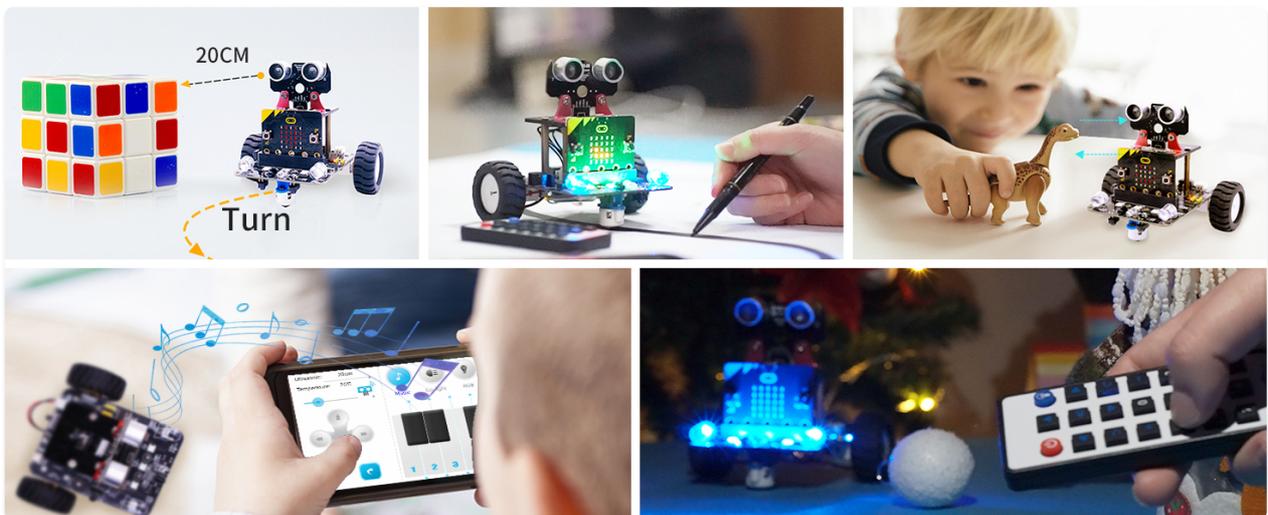

Image: A detailed view of all components included in the Yahboom Micro:bit Robot Car Kit, neatly arranged for easy identification.

Video: An initial tutorial video demonstrating the unboxing and basic assembly steps of the Micro:bit Robot Car Kit, including how to load programs for IR and Bluetooth control.

3. SETUP & ASSEMBLY

Follow the step-by-step instructions provided in the included manual to assemble the robot car. Most parts connect with screws, and some feature anti-reverse sockets for ease of installation. No soldering is required.
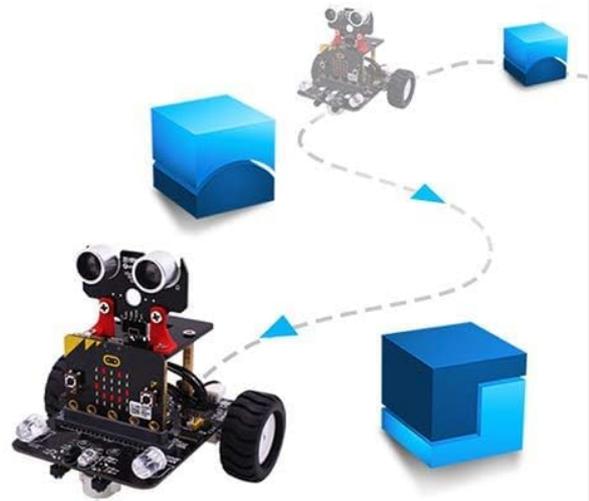
Important Notes:

- Children without programming experience may require parental support during assembly and programming.

- Ensure you have a BBC Micro:bit board (v1 or v2) as it is essential for the robot's operation and is not included in this kit.

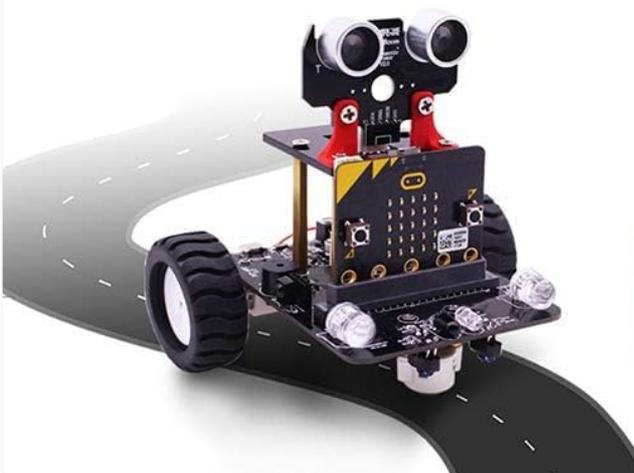- The robot kit is not pre-assembled; self-installation is required.

Following

Avoiding obstacle

NOTE:
Micro: bit board is NOT included,
users must prepare by themselves,
otherwise the robot will NOT work properly

Tracking

IR control

Image: An exploded view diagram illustrating the assembly of the Yahboom Micro:bit Robot Car Kit, showing the placement of the Micro:bit board, ultrasonic sensor, wheels, and motors.

Image: The assembled Yahboom Micro:bit Robot Car Kit, emphasizing the requirement for a separate Micro:bit board to ensure proper functionality.
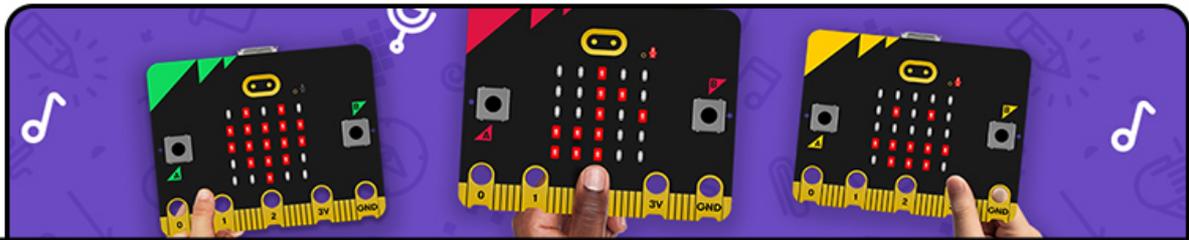
4. PROGRAMMING

The Yahboom Micro:bit Robot Car Kit supports multiple programming environments, making it accessible for various skill levels:

- **JavaScript Graphical Programming:** Ideal for beginners, offering a block-based visual interface.
- **Python Programming:** Suitable for users with some coding experience, providing a text-based programming environment.

More than 30 experimental courses are provided to guide users through different programming concepts and robot functionalities. For detailed tutorials and resources, please visit the official Yahboom website or refer to the links provided in the manual.

Based on BBC Micro:bit

Equipped with Micro:bit V2 board

| Touchable LOGO | Build-in microphone | Build-in speaker | Upgraded connector edge | Build-in sleep and shutdown mode | CPU performance improvement |

Image: A child engaging with Makecode graphical programming on a laptop, demonstrating the visual and intuitive way to program the Micro:bit robot.

Makecode graphics programming

Image: A person typing code on a laptop, illustrating the use of Python programming for advanced control of the Micro:bit robot.

Video: A short tutorial demonstrating the programming process for the Yahboom Micro:bit Robot Car, highlighting how to upload code to enable various functionalities.

5. OPERATING INSTRUCTIONS

The robot car offers multiple control methods and functionalities:

- **IR Remote Control:** Use the included infrared remote to control the robot's movement and other

features. Ensure the remote's transmitting tube is aimed at the receiving head on the expansion board.

- **APP Remote Control:** Download the dedicated app (search "Mbit" or "Yahboom" in your device's app store) for Android and iOS devices. Connect via Bluetooth to control the robot.
- **Functions:** The robot supports advanced functions such as line tracking, ultrasonic obstacle avoidance, following, light discoloration, and playing music.
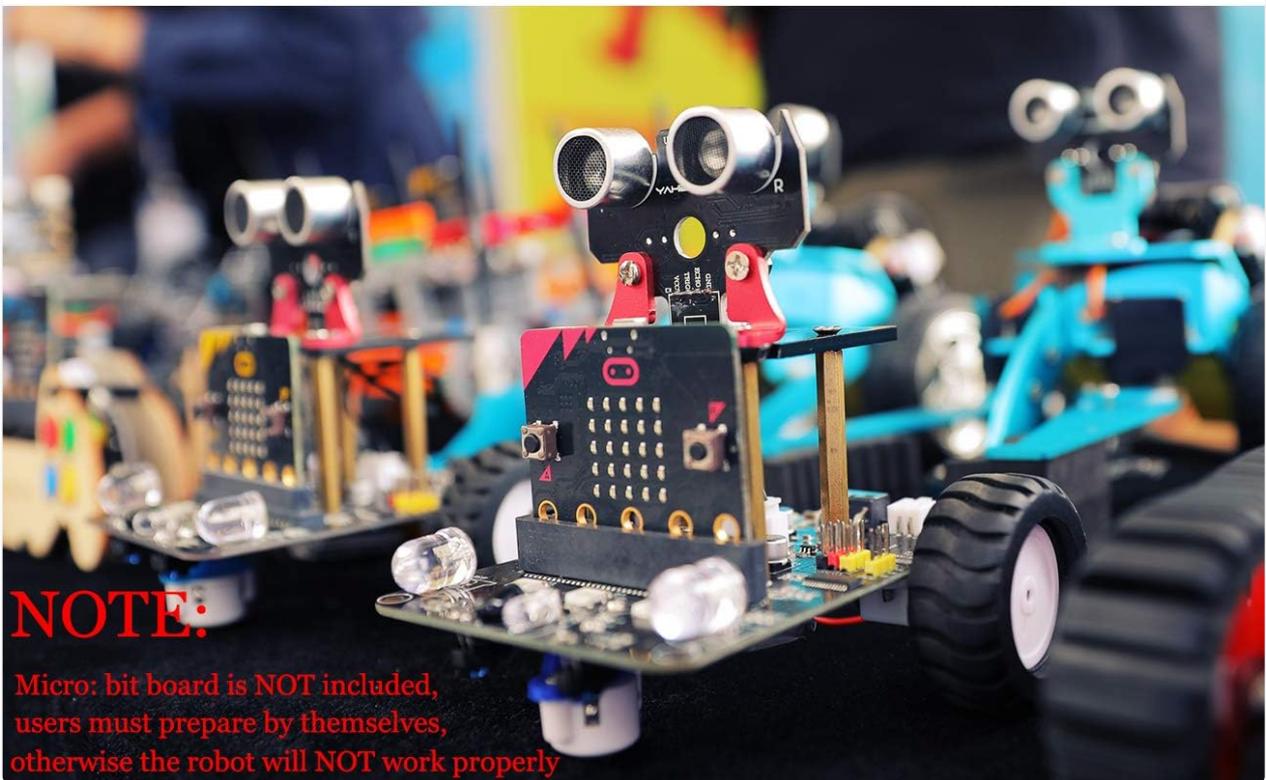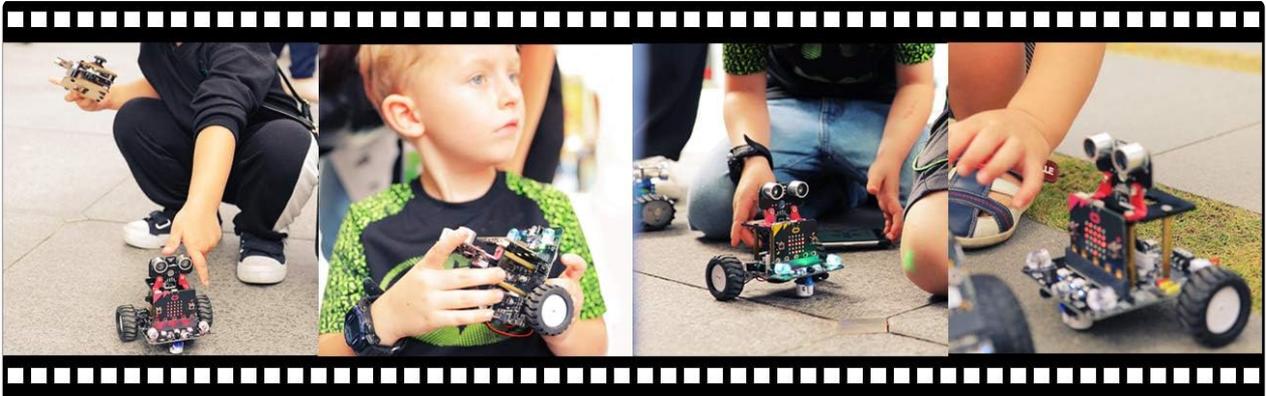

Image: Visual representation of the robot's core functions including following, obstacle avoidance, line tracking, and control via IR remote.

Image: A collage showing the robot performing various actions such as turning, drawing, interacting with objects, and being controlled by a smartphone app and IR remote, demonstrating its versatile operating modes.

Video: A demonstration of the robot car's flexible and intelligent movements, showcasing its ability to navigate and interact with its environment.

6. MAINTENANCE

To ensure the longevity and optimal performance of your Yahboom Micro:bit Robot Car Kit, follow these maintenance guidelines:

- **Cleaning:** Keep the robot free from dust and debris. Use a soft, dry cloth to wipe surfaces. Avoid using liquids or harsh chemicals.
- **Battery Care:** Charge the lithium battery using the provided USB cable. Do not overcharge or completely drain the battery. Store the robot with a partially charged battery if not in use for extended periods.
- **Connections:** Periodically check all screw connections and cable plugs to ensure they are secure. Loose connections can affect performance.
- **Storage:** Store the robot in a cool, dry place away from direct sunlight and extreme temperatures.

7. TROUBLESHOOTING

If you encounter issues with your robot car, consider the following troubleshooting steps:

- **Robot Not Powering On:** Ensure the lithium battery is fully charged and correctly connected. Check the power switch on the expansion board.
- **Robot Not Responding:** Verify that the Micro:bit board is securely inserted into the expansion board. If using IR control, ensure the remote's plastic gasket is removed and it is aimed correctly. For APP control, confirm Bluetooth is enabled on your device and the app has necessary permissions.
- **Movement Issues:** Check motor connections and ensure wheels are properly attached. If a wheel is not moving, inspect its wiring.
- **Programming Errors:** Double-check your code for any syntax errors or logical flaws. Refer to the online tutorials for guidance. Re-downloading the program to the Micro:bit can resolve many issues.
- **Micro:bit Display Issues:** If the Micro:bit's LED matrix is not displaying correctly, ensure the board is properly seated and the program is loaded.

8. SPECIFICATIONS

Feature	Detail
Controller	Micro:bit board
Programming Software	JavaScript editor / Python editor / Mobile phone programming
Input	Infrared obstacle avoidance sensor / Ultrasonic module / Infrared tracking sensor / Infrared receiving probe
Output	Motor / Buzzer / LED Light / Servo / Colorful Searchlight / Colorful Programming Light
Power Supply	3.7V lithium battery
Working Time	About 30 minutes
Distance Measurement	Vertical ultrasonic module
Motor	1:10 DC geared motor
Remote Control Method	Bluetooth remote control / Infrared remote control
Assembly Method	Welding-free installation
After Assembly Size	96*120*110mm
After Assembly Weight	157g

9. WARRANTY & SUPPORT

For any questions, concerns, or technical assistance regarding your Yahboom Micro:bit Robot Car Kit, please contact Yahboom customer support. We are committed to resolving any product-related inquiries you may have.

- **Online Tutorials:** Access detailed experiment courses and programming guides on the official Yahboom website.
- **Customer Service:** Contact Yahboom directly for support. Refer to the contact information provided in your product's physical instruction manual for the most up-to-date details.