Simple car - MB2

Introduction

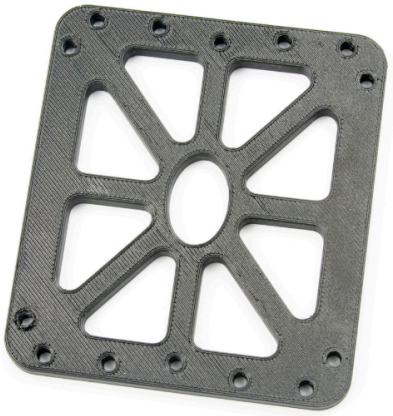
This manual describes the 3D printing and assembly of a small robotic vehicle.

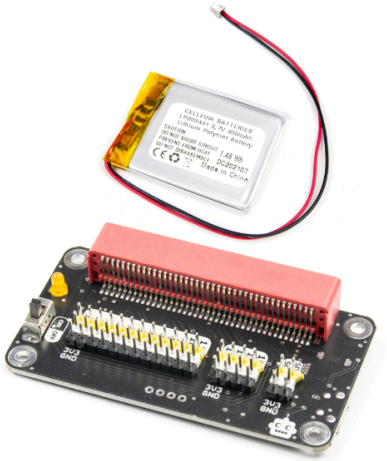
The vehicle offers a wide range of possibilities:

- Provides both entertaining and educational play value.
- Teaches basic mechanical principles during assembly.
- Demonstrates the operating principle of servo motors.
- Allows the construction and use of a custom remote control.
- Utilises an analogue-to-digital converter to control the vehicle with a joystick.
- Enables the addition of custom mechanical parts made with a 3D printer.

Contents

Required Components

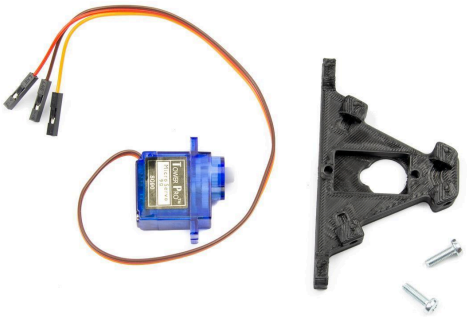




Assembly

1. Installing the Servo Motors

- Prepare two servo motors, side motor mounts, and four M3×10 screws.
- Insert the motors from the inside of the plastic part so that they fit smoothly into the designated openings. Fasten them with M3×10 screws using a Phillips screwdriver. No significant force is required.

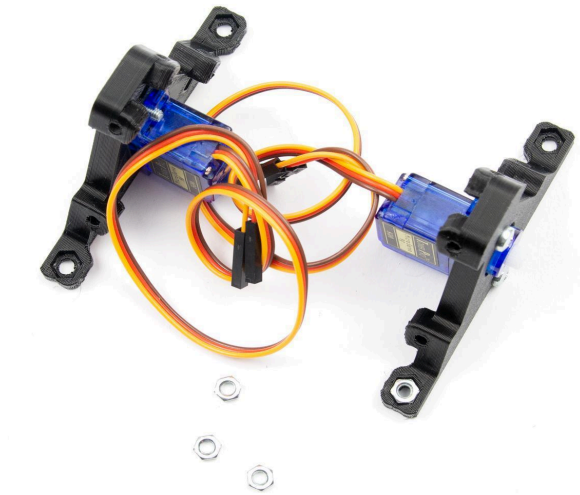


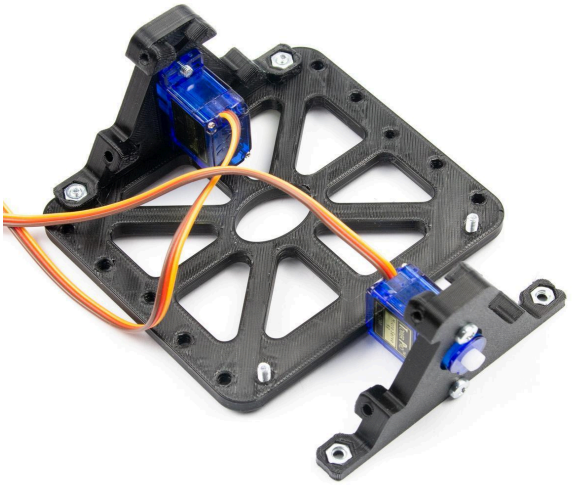
2. Preparing the Wheels

- Prepare two O-rings (57 × 4 mm), two adapters, and four longer screws from the servo motor package.
- Insert the adapters into the wheels and secure them from the outside with two of the longer screws.
  Once tightened, fit the rubber O-rings onto the wheels.

3. Assembling the Simple Car Housing

- Prepare four M3 nuts, four M3×10 screws, the base plate, and the two side plates with the previously installed motors from step 1.
- Insert the nuts from above into the openings on the side plates, as shown in the illustration.
- Attach the side plates to the base plate using two screws from below.
- Repeat the entire process for the second side plate.

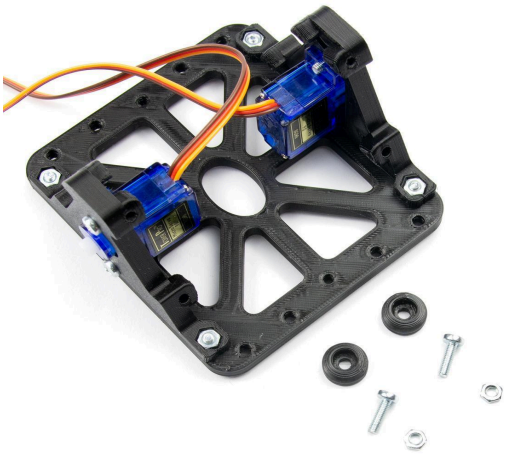


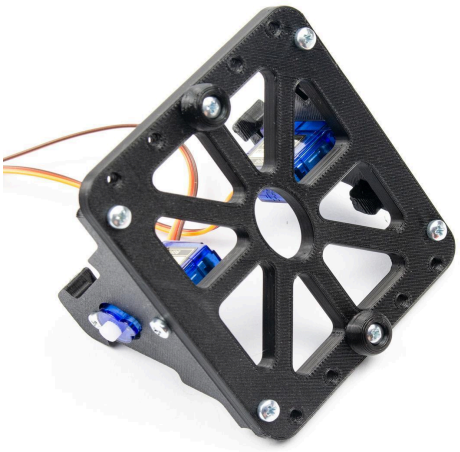


4. Attaching the Gliding Feet

- Prepare two M3×10 screws, two M3 nuts, and the gliding feet as shown in the illustration.
- Since the Simple Car has only two wheels, gliding feet must be installed to ensure stability of the entire vehicle.

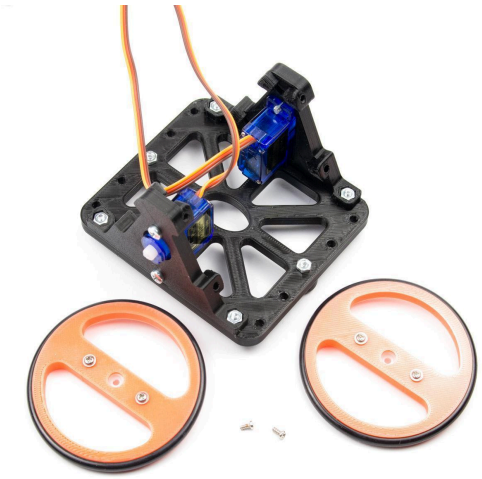
- On each side, attach a gliding foot using one screw and one nut so that it is positioned on the underside of the housing.





5. Installing the Wheels

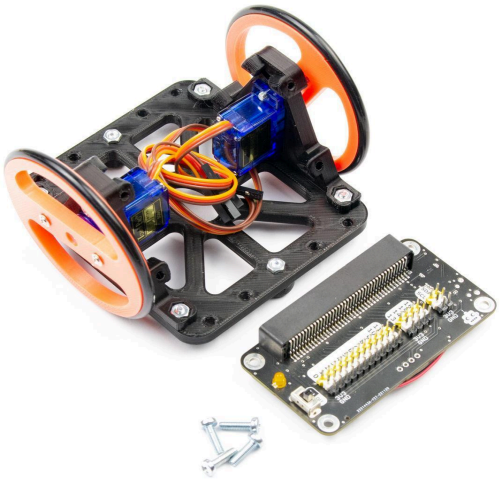
- Prepare two wheels, the assembled housing, and two small screws from the servo motor package.
- Place the wheels onto the servo motor shafts using the adapters fixed inside the wheels.
- Secure each wheel to the servo motor with a small screw through the centre of the wheel.
- Repeat the procedure on the opposite side.

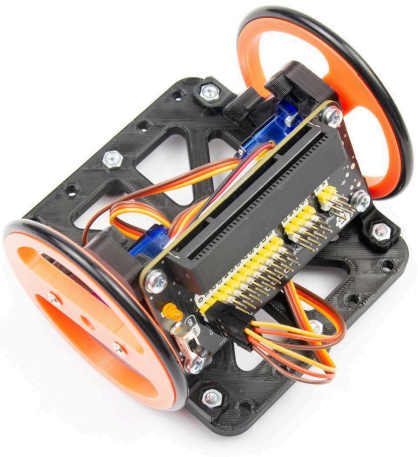


6. Installing the MB2 Expansion Board

- Prepare the MB2 expansion board for the micro:bit from OMG Robotics with integrated battery, and four M3×10 screws.
- Attach the expansion board to the housing as shown in the illustration.
- The main board can be mounted on either side of the vehicle.

- Finally, connect the servo cables according to the circuit diagram below.





Circuit Diagram