

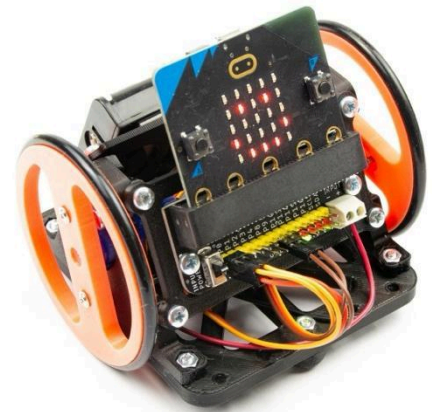
# Simple car - MB3

## Introduction

The following steps describe how to 3D print and assemble a chassis for 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

2

### Assembly

**3**

1. Installing the Servo Motors

3

2. Preparing the Wheels

3

3. Assembling the Simple Car Housing

4

4. Attaching the Gliding Feet

4

5. Installing the Wheels

5

6. MB3 adapter

5

7. Mounting on the Chassis

6

8. Installing the Battery Holder

7

9. Connecting the Electronics

7

### Circuit Diagram

8

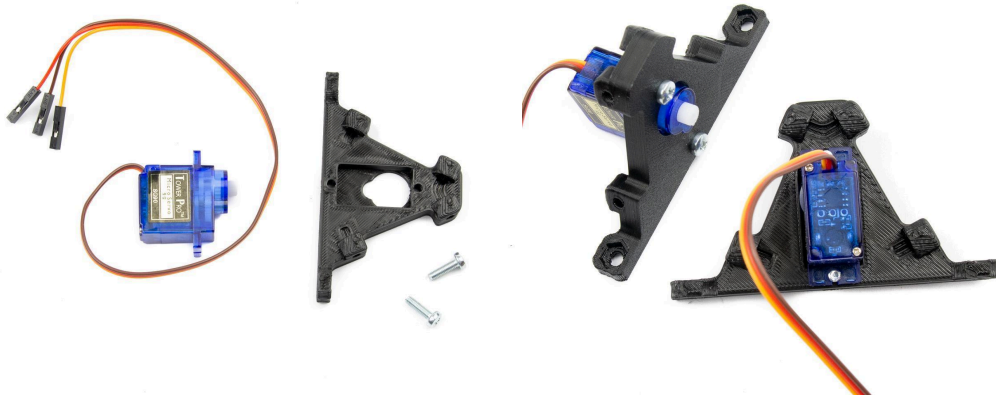
## Required Components



## 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 screws using a Phillips screwdriver. No significant force is required.



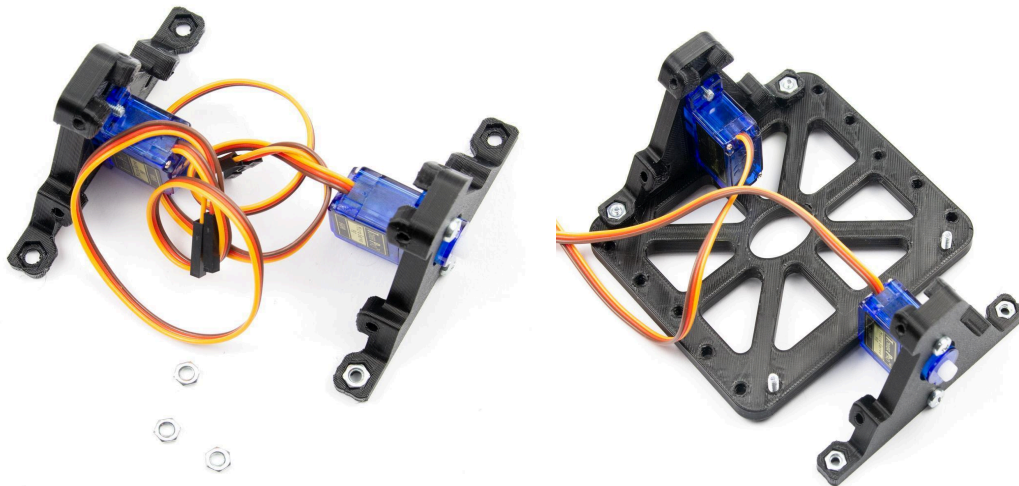
### 2. Preparing the Wheels

- 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.



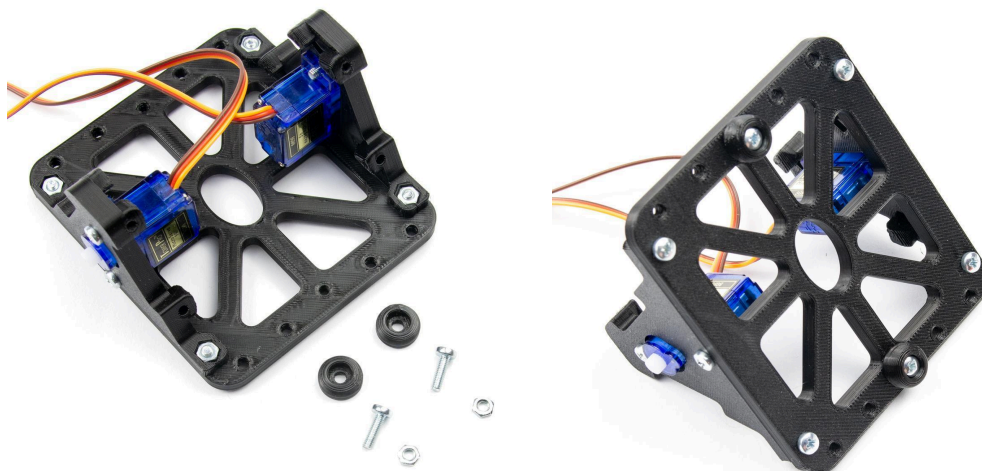
### 3. Assembling the Simple Car Housing

- 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 are added 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.



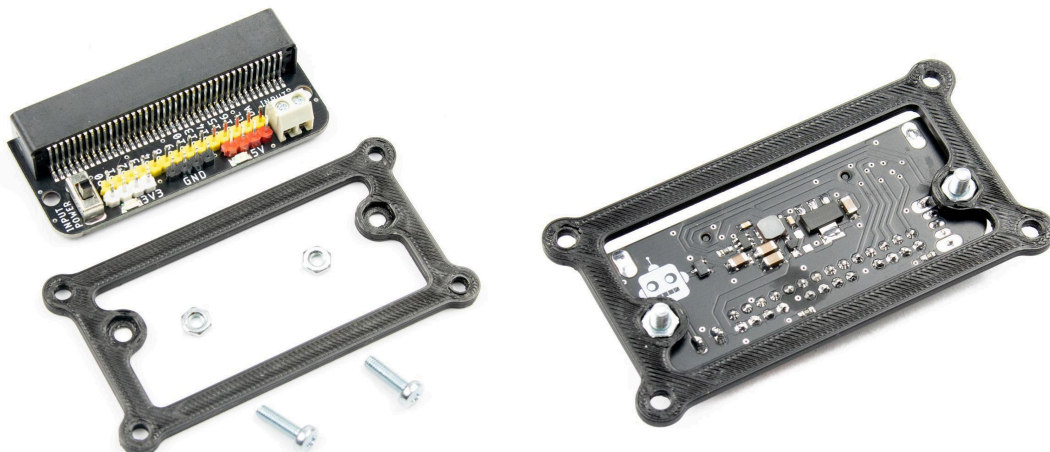
## 5. Installing the Wheels

- 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.



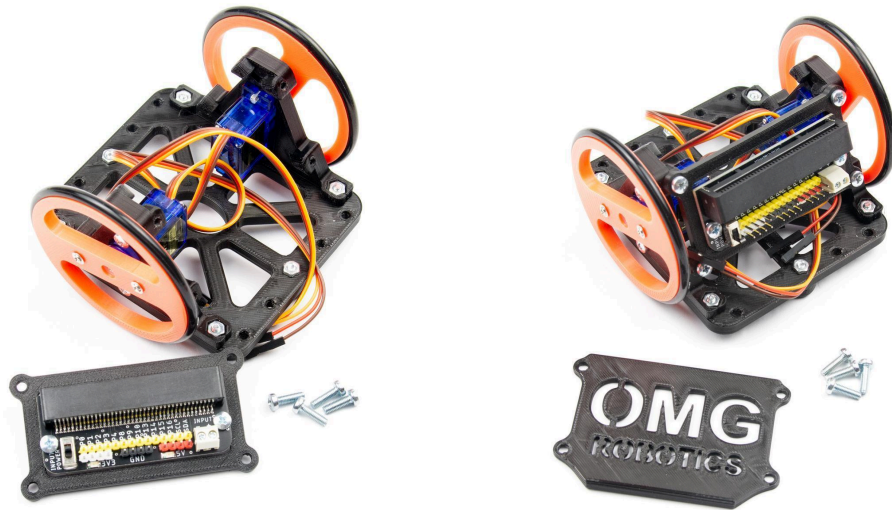
## 6. MB3 adapter

- Prepare the MB3 expansion board for the micro:bit from OMG Robotics, two M3×10 screws, and two M3 nuts.
- Insert the nuts into the designated openings of the adapter.
- Place the MB3 expansion board onto the adapter and fasten it from above with the screws.



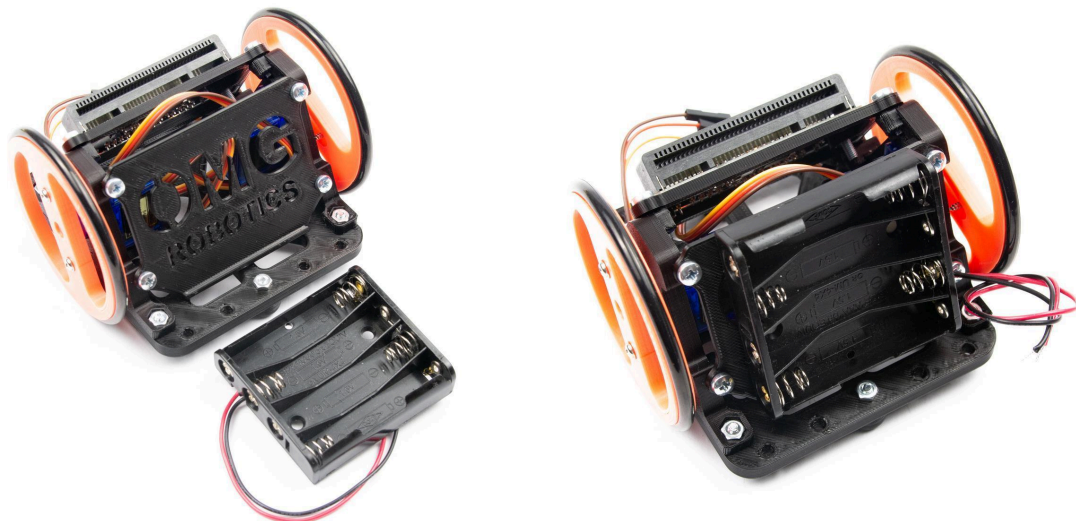
## 7. Mounting on the Chassis

- Prepare the adapter with the mounted MB3 expansion board, the adapter for the battery holder, the assembled chassis, and eight M3×10 screws.
- Attach the expansion board, already mounted on the adapter, to one side of the chassis using four screws.
- On the opposite side, attach the adapter for the battery holder with four screws.



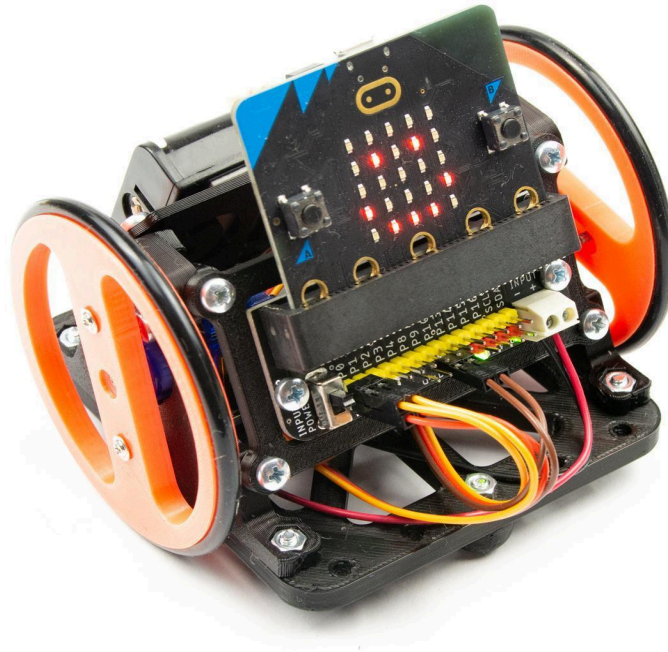
## 8. Installing the Battery Holder

- Prepare the chassis and the battery holder.
- The battery holder can be attached using double-sided tape, a hot glue gun, or super glue.



## 9. Connecting the Electronics

- Finally, connect the servo motors and the battery holder to the MB3 expansion board according to the circuit diagram at the end of this document.



# Circuit Diagram

