Capacitor (polar)

You can charge (store) and discharge (release) electricity by combining capacitors with resistors and inductors. When people measure capacitance, they use the letter F. The Rookie Coding Robot uses 100 uF and 1000 uF capacitors.

LED (polar)

An LED is what we call a semiconductor that emits light when electricity passes through it. LED stands for Light Emitting Diode. Compared to other types of lights, LED's use much less electricity and have very long lifespans, making them perfect not only for your Rookie Coding Robot but everything from traffic signals to the lights in your house.

The (-) side is shorter.

Switching diode (polar)

Switching diodes are mainly used to control on and off signals in a circuit. Diodes used for switching low-level signals (approx. 100mA) have a voltage less than 10V, are small and consume very little electricity. Because of this, they're very common in small -scale circuits like the one found in your Rookie Coding Robot.

Inductor

Switching diodes are mainly used to control on and off signals in a circuit. Diodes used for switching low-level signals (approx. 100mA) have a voltage less than 10V, are small and consume very little electricity. Because of this, they're very common in small -scale circuits like the one found in your Rookie Coding Robot.

Name	Functions
L1	Inductor (brown, black, red, silver)

Push-button switch (non-polar)

An automatic return switch that changes a signal to ON when it's pushed. The four push-button switches for your Rookie Coding Robot are used to give commands. When used with an electric circuit, one push-button switch sends different signals by pushing it twice or holding it down.
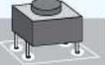
Switch

A switch is a device that opens and closes a circuit in an electric circuit or device during normal operation. Your Rookie Coding Robot has a slide switch that connects two points.

ROOKIE CODING·ROBOT
OWI-SLK003

OWIKIT™
www.owirobot.com

The least expensive coding robotics kit in OWI's 40-year history! **Rookie Coding Robot** kit is this years can't miss prospect. This 25-piece kit has a simple press-button programming function with no need to download codes from a personal computer or tablet via USB, or Bluetooth connections, all the tech needed is onboard! Several levels of thinking skills can be challenged with the **Rookie Coding Robot.** Simple and basic (forward, left turn, and right turn) with each individual command powering the robot for half-second intervals. "A to B" using mathematical time measurement distance coding methodology; OR, advanced reasoning skills can be applied by designing obstacle or maze courses. With a maximum storage capacity of 360 button presses (180 seconds) or 30 tasks, the **Rookie Coding Robot** is the perfect kit for beginners and advanced coders alike. By virtue of problem-solving and mathematical skills, boys and girls will be able to "crack" the code and master the skill. Teach them the basics, and we have tomorrow's programmers… today.
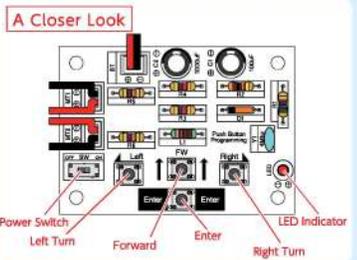
Starter's Guide

1 Programming

A. Turn on power, the LED light will come on, and your robot will go into standby mode when powered.

B. Pressing the black buttons will enter the commands to make your Rookie Coding Robot move left, right and forward.

C. A "command" is any number of consecutive presses of a single button. (The robot will move for 0.5 seconds per button press. See **2** Sample Program)

D. To complete the entry of any command you must press the Enter button. This will cause the LED to blink once and the robot will return to Standby mode.

E. When you have entered all commands, press and hold down the Enter button until the LED blinks multiple times. Your Rookie Coding Robot is now in Ready mode.

F. Your Rookie Coding Robot will perform your commands after pushing the Enter button. (The LED will light up when executing commands.)

G. The LED will switch off when all tasks have been performed, and the robot will go into Standby mode.

H. When you turn the Rookie Coding Robot off, the memory will be erased.

2 Sample Program
(Forward 5s → Right Turn 3s → Forward 4s → Left Turn 3s → Forward 3s)

•Press forward x 10 -> Enter x1 (LED will blink once, and the robot will enter Standby mode)

•Press Right x 6 -> Enter x1 (LED will blink once, and the robot will enter Standby mode)

•Press Forward x 8 -> Enter x1 (LED will blink once, and the robot will enter Standby mode)

•Press Left x 6 -> Enter x1 (LED will blink once, and the robot will enter Standby mode)

•Press Forward x 6 -> Enter x1 (LED will blink once, and the robot will enter Standby mode)

•Hold down Enter (LED will start blinking, and the Rookie Coding Robot will enter Ready Mode)

•Press Enter -> Your robot will perform the tasks you've given it (LED will turn on and the Rookie Coding Robot will enter Run mode)

•Complete (LED will start blinking, and the robot will return to Ready mode)

A Closer Look

Push Button Programming

Power Switch
Left Turn
Forward
Enter
Enter
Right Turn
LED Indicator

3 Other

•Pressing the enter button two times will erase a previously input command. The LED will blink twice, and your Rookie Coding Robot will return to Standby mode.

•Your Rookie Coding Robot can store a maximum of 360 button presses (180 seconds) or 30 tasks.

Assembly Instructions

To minimize the chance of mistakes, read these instructions in their entirety prior to beginning assembly.

•Follow the directions in the instructions manual when assembling the product.

•Verify the checklist for all listed parts and make sure not to lose any parts before assembling.

•Use tools suitable for their intended purposes and in a manner compliant with applicable standards.

•Visually check for problems before turning the power on. Turn the power off in case the robot malfunctions, and re-read the instructions for how to proceed.

Checklist — Tools Needed

● Battery (AA) x3 (not included) Alkaline Batteries Recommended.
●#2 Phillips screwdriver (dia. 6 mm)

Verify that you have each part and tick the box next to it on the list below.

① Gear box x 2 □
② Circuit board x 1 □
③ Battery holder x 1 □
④ Half C block x 2 □
⑤ Rotor axis C x 1 □
⑥ Wheel x 3 □
⑦ O-ring x 2 □
⑧ Flat Head Screw (dia. 3 x 5 mm) x 2 □
⑨ Round Head Screw (dia. 4 x 5 mm) x 4 □
⑩ Basic cube x 2 □
⑪ Disc x 2 □
⑫ Hub x 2 □
⑬ Circuit board mount x 1 □

Assembling the Rookie Coding Robot Body

1 Use **flat head screw (dia. 3 x 5 mm)** (⑧) to attach the **battery holder** (③) to the **circuit board mount** (⑬).
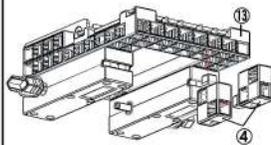
③Battery holder ⑧ ⑬
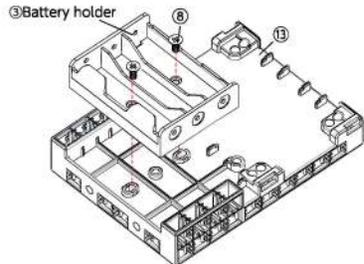
2 Use **round head screw (dia. 4 x 5 mm)** (⑨) to attach the **circuit board** (②) to the **circuit board mount** (⑬).
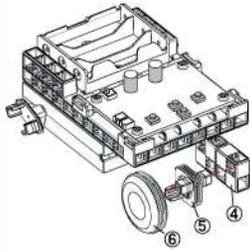
⑨ ② Push-button switch ⑬
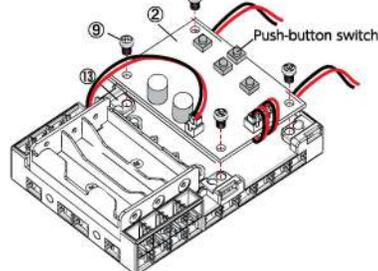
3 Attach the **hubs** (⑫) to the **gearboxes** (①) and attach the **gearboxes** (①) to the **circuit board mount** (⑬).

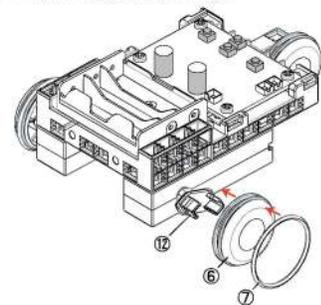★ Make sure not to mix up the right and left sides.

⑬ ⑫ MT1 ①Gear box MT2 ⑫
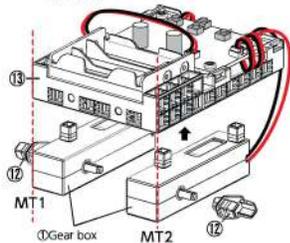
4 Attach the **half C block** (④) to the **circuit board mount** (⑬).

⑬ ④

5 Attach a **wheel** (⑥) and **rotor axis C** (⑤) to the **half C block** (④).

⑤ ④ ⑥

6 Attach the **O-rings** (⑦) to the **wheels** (⑥) and the **wheels** (⑥) to the **hubs** (⑫).

⑫ ⑥ ⑦

7 Attach the **discs** (⑪) and **basic cubes** (⑩) anywhere you like.
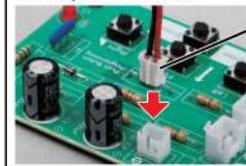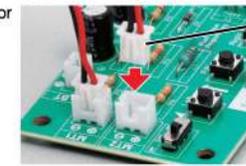
⑩ ⑪ ⑩ ⑪
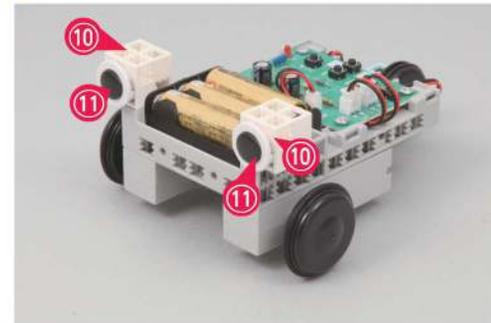
Is your robot sluggish?
- Batteries may be drained. Replace batteries.
- The robot may be assembled incorrectly. Re-read and check assembly instructions.
- The wheels may be rotating in opposite directions due to the gear boxes being attached incorrectly. Re-read and check the Assembly Instructions.

Connecting Parts

Battery Holder (BT)

Connector

Gear Boxes (MT)

Connector
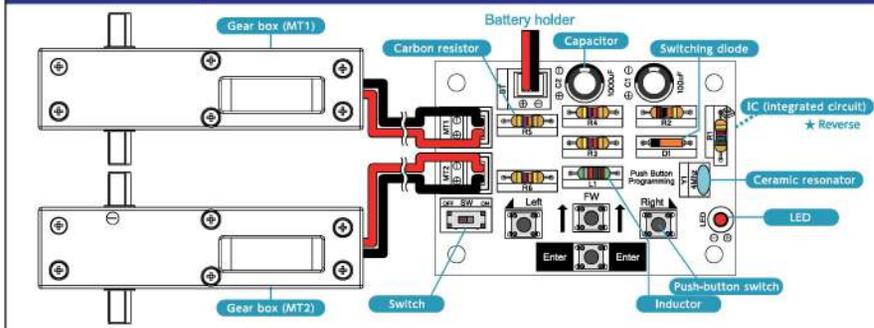
Look at the Circuit Board Components section below to see which connectors you should plug your battery holder and gearboxes into.
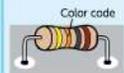
Completed View

Top Bottom Front Side

Circuit Board Components

Gear box (MT1)
Battery holder
Carbon resistor Capacitor Switching diode
IC (integrated circuit) ★ Reverse
Ceramic resonator
Push Button Programming
Left FW Right LED
Enter Enter
Gear box (MT2) Switch Push-button switch Inductor

Carbon resistor (non-polar)
Color code

Resistors limit the flow of electric currents. Although the general name is "carbon resistor," the scientific name is "carbon film resistor."The four -band color code printed on the resistor indicates its value. The most commonly used resistors are between 0.125 and 0.5 watts. The Rookie Coding Robot uses 0.25-watt resistors and five different types of resistors in total. Compare your circuit board with the diagram on the right.

Name	Functions
R1	Carbon resistor 560R (green, blue, brown, gold)
R2	Carbon resistor 10K (brown, black, orange, gold)
R3	Carbon resistor 4.7K (yellow, purple, red, gold)
R4	Carbon resistor 4.7K (yellow, purple, red, gold)
R5	Carbon resistor 47K (yellow, purple, orange, gold)
R6	Carbon resistor 47K (yellow, purple, orange, gold)

Ceramic Resonator (non-polar)

Ceramic resonators use ceramic's piezoelectric effect (electricity created using pressure) to oscillate or vibrate at certain frequencies. Resonators are installed on electronic circuits in order to control the frequency of electronic signals. The size and shape of the ceramic determine its vibration, which determines the frequency and allows it to measure time in an object.

IC (Integrated Circuit)
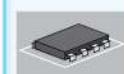
An integrated circuit (IC) is a series of resistors, capacitors, and transistors installed on a single semiconductor. The reason behind your Rookie Coding Robot size is the fact that it uses two IC's. If your robot didn't use integrated circuits, it would need a circuit board that's many times larger than it is now.