

littleBits[™]

DCI STEM

POWER

02 p4 power

INPUT

03 i5 slide dimmer
04 i8 proximity sensor
05 i20 sound trigger

WIRE

06 w1 wire
17 w8 latch

OUTPUT

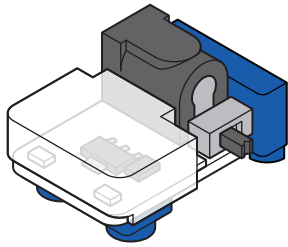
08 o2 long LED
09 o6 buzzer
10 o11 servo

ACCESSORIES

11 a23 mechanical arm
a30 mounting board
12 a31 battery mount

* Occasionally Bits[™] get updated, so the features or appearance of your Bits may differ from those used in this guide.

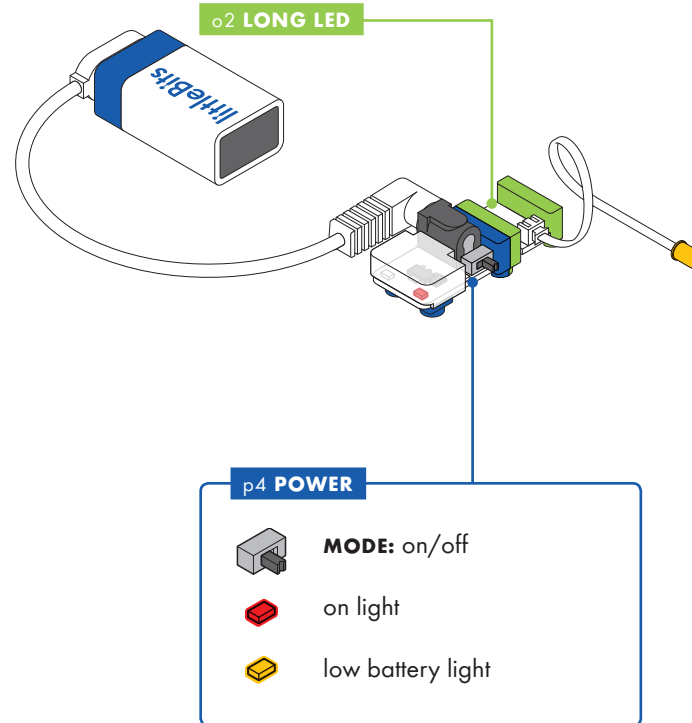
p4 POWER



MEET THE BIT

Every circuit starts with power. It provides the electricity that makes your Bits spin, buzz, blink, and shine.

SAMPLE CIRCUIT



HOW IT WORKS

The p4 power Bit converts the 9 volts of electricity in the battery to the 5 volts that littleBits circuits run on.

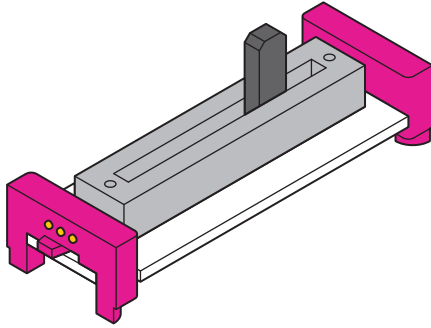
The power Bit also sends a signal through your circuit. Controlling this signal with inputs is how you control your circuit.

REAL WORLD ANALOGIES



PHONE CHARGER

i5 SLIDE DIMMER



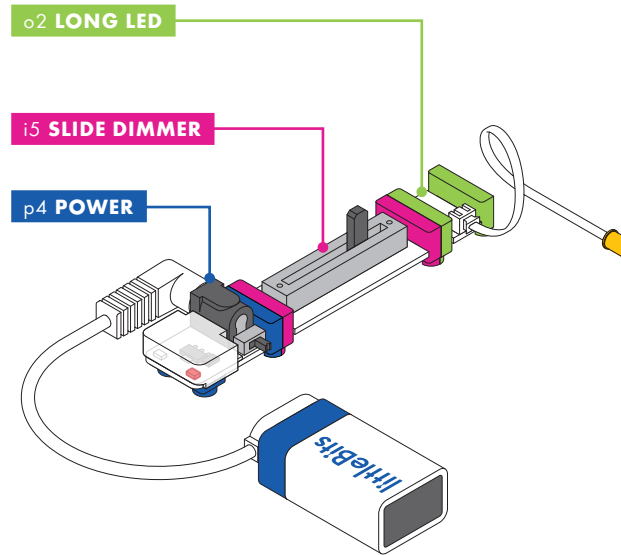
MEET THE BIT

Slide this dimmer back and forth to control your circuit. As you slide it up, more signal goes to the Bits that follow, brightening lights, speeding up motors, and raising the volume on buzzers.

MINI-CHALLENGE

Can you invent something with the slide dimmer that waves a flag back and forth? How could you change the speed it waves?

SAMPLE CIRCUIT



HOW IT WORKS

When the slider is all the way to the left, it's sending an off or 0 volt signal. When the slider is all the way to the right, it's sending an on or 5 volt signal. The slider can be positioned to send any signal between 0 and 5 volts.

REAL WORLD ANALOGIES

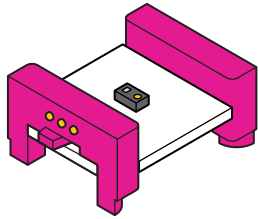


HOUSEHOLD DIMMER SWITCH



CAR PEDAL

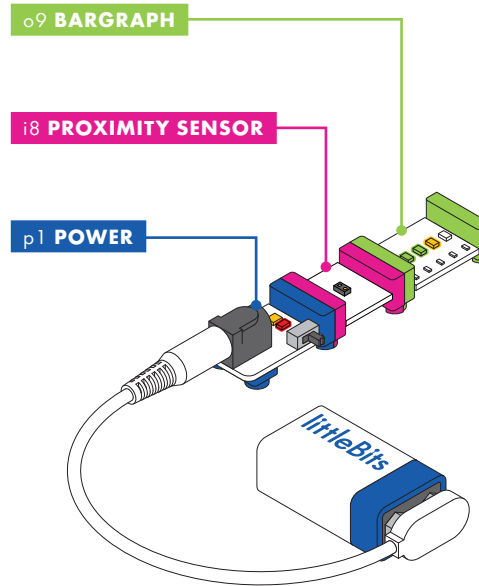
i8 PROXIMITY SENSOR



MEET THE BIT

This Bit beams an infrared light that allows it to sense objects in front of it.

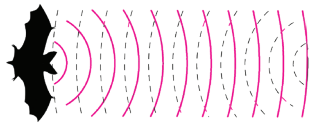
SAMPLE CIRCUIT



HOW IT WORKS

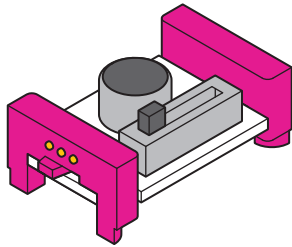
The proximity sensor is like a pair of eyes for your circuit. It detects objects by using an infrared beam to sense what's in front of it. As the object gets closer to the proximity sensor, more signal will pass to the following Bits in the circuit.

REAL WORLD ANALOGIES



BAT VISION

i20 SOUND TRIGGER



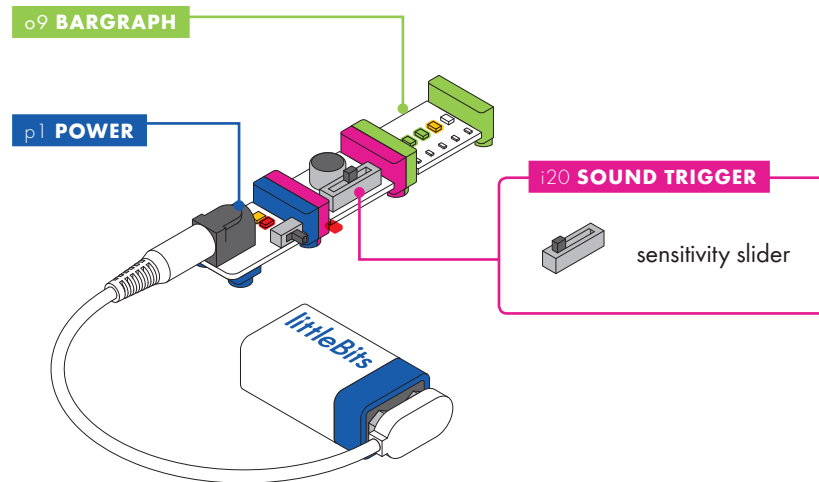
MEET THE BIT

Use this Bit to control your circuits with sound. It's a great way to make your inventions hands-free!

MINI-CHALLENGE

Can you invent something that moves at the snap of your fingers?

SAMPLE CIRCUIT



HOW IT WORKS

The sound trigger has a microphone that measures how much noise is around it. When the noise goes above a certain level, the sound trigger will send out an on or 5 volt signal to the following Bits in the circuit. Use the adjustment slider to set the sensitivity (how much noise is needed to trigger your Bit).

REAL WORLD ANALOGIES



CLAP ON LIGHT

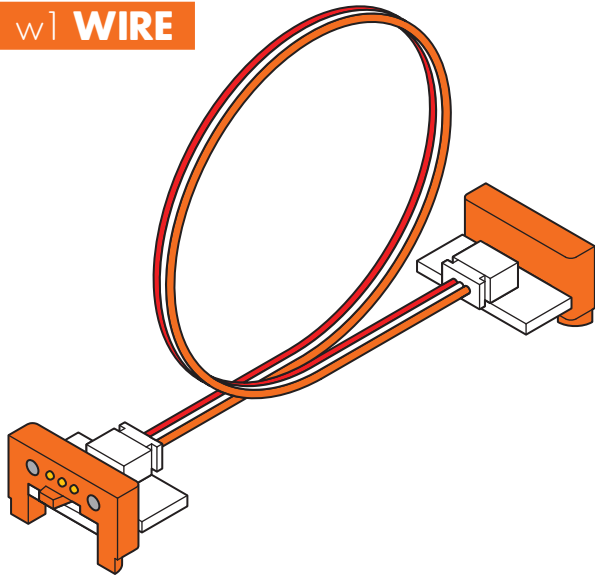


HUMAN EAR



BEAR IN HIBERNATION

w1 WIRE



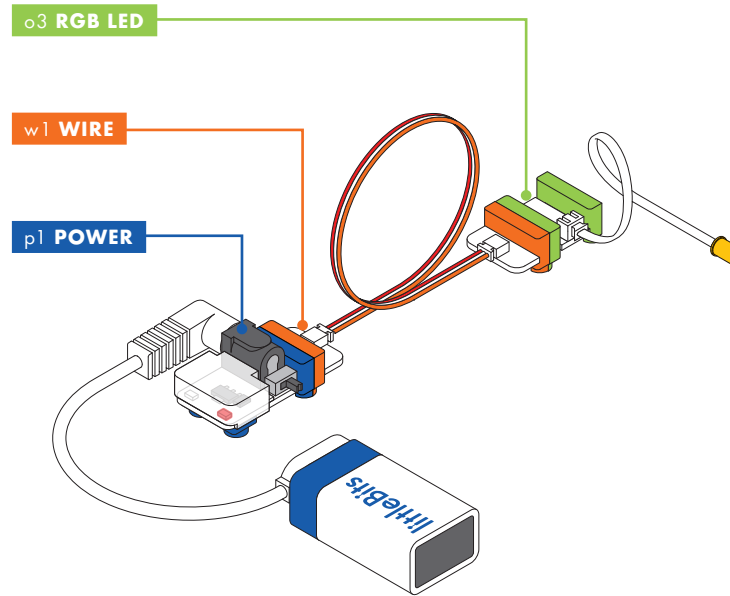
MEET THE BIT

The wire Bit has a flexible wire running between its two bitSnaps. This allows you to place your Bits farther apart, turn corners, and make connections that can twist, turn, and spin.

MINI-CHALLENGE

Can you invent a circuit that you wrap around your arm?

SAMPLE CIRCUIT



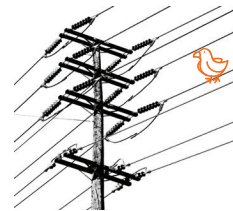
HOW IT WORKS

The wire doesn't change the signal in any way - it just carries the signal over from one Bit to another. Each wire Bit is 6 inches (15 cm) long.

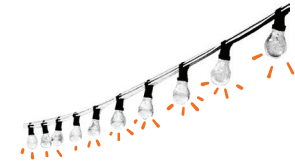
REAL WORLD ANALOGIES



EXTENSION CORD

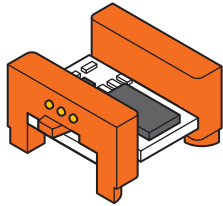


POWER LINES



STRING OF LIGHTS

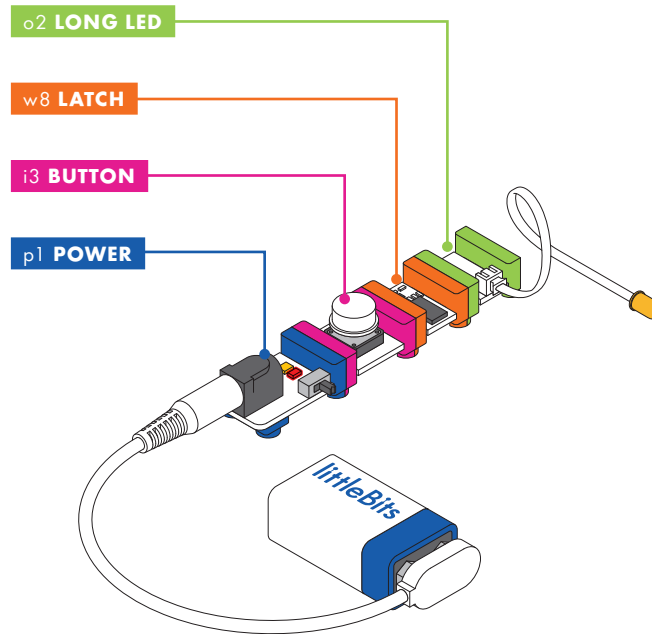
w8 LATCH



MEET THE BIT

Use the latch to turn any momentary input, like a button or a trigger Bit, into an on-off switch, like a toggle!

SAMPLE CIRCUIT



HOW IT WORKS

If you place a button in front of the latch, and a light after, pressing the button once will turn it on and keep it ON. Pressing it again will turn it off. Try placing a sound trigger in front of the latch and a light after it, then, just snap your fingers!

REAL WORLD ANALOGIES

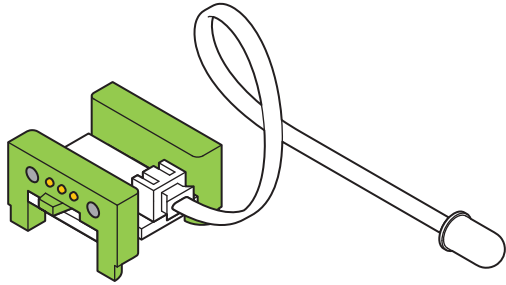


DOORSTOP



CLICKING A PEN

o2 LONG LED



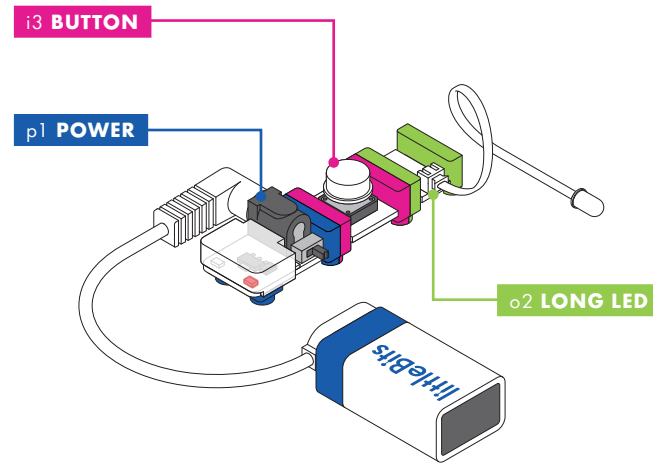
MEET THE BIT

The long LED is a flexible lighting option. We call it the “long” LED because the light is connected to the board by a cable, which lets you put the light in some interesting places.

MINI-CHALLENGE

Can you invent a new wearable accessory using the long LED?

SAMPLE CIRCUIT



HOW IT WORKS

This Bit uses a light-emitting diode (LED) to turn electricity into light. The more signal you send the Bit, the brighter the light shines.

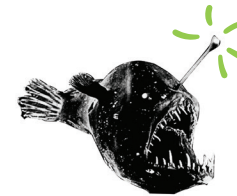
REAL WORLD ANALOGIES



FLASHLIGHT

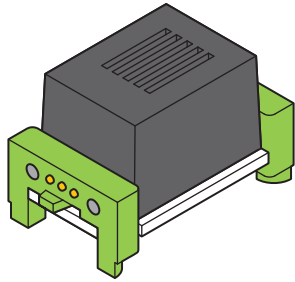


STREET LAMP



ANGLERFISH

o6 BUZZER



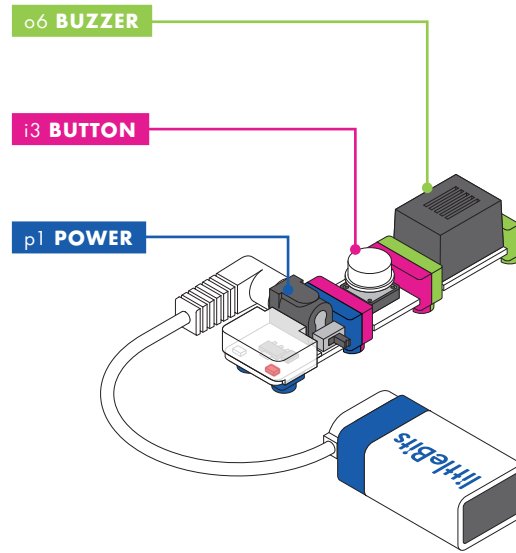
MEET THE BIT

The buzzer makes a sound no one can ignore. It's great at sounding the alarm or annoying those nearby.

MINI-CHALLENGE

Can you invent a way to communicate with your friends using the buzzer?

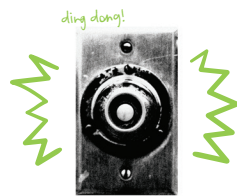
SAMPLE CIRCUIT



HOW IT WORKS

The buzzer converts the electrical signal it receives into a vibration, which creates a buzzing sound. The higher the signal it receives, the more intense the vibration, and the louder the sound is.

REAL WORLD ANALOGIES



DOORBELL

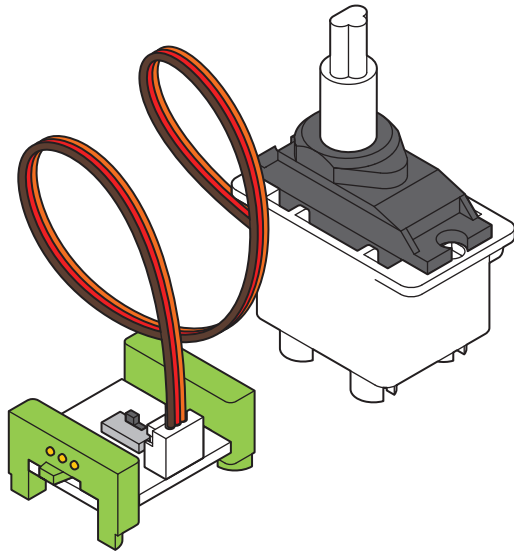


CAR ALARM



WASHING MACHINE

o11 SERVO



MEET THE BIT

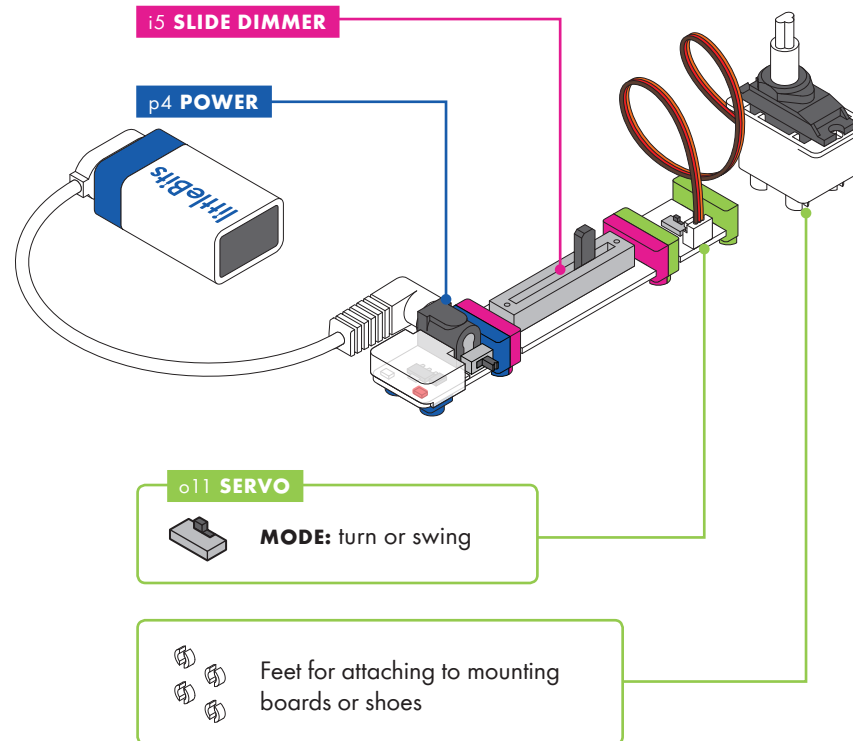
The servo is a motor that can swing back and forth or be turned to a specific position.

There are a few accessories you can use with the servo (like the mechanical arm). You can find out how to use those on page 26.

MINI-CHALLENGE

Can you invent something that uses the servo to clean up your desk?

SAMPLE CIRCUIT



HOW IT WORKS

The servo has two modes. In **TURN** mode, the input from other Bits determines the position of the hub - try using a dimmer to set the angle you want. In **SWING** mode, the servo will move back and forth on its own like a pair of windshield wipers - the input signal controls the speed of the swing.

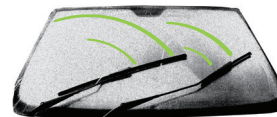
The servo's range of motion is about 180 degrees.

The servo motor is contained within a servo bucket. Simply press the plastic feet into a mounting board for extra stability.

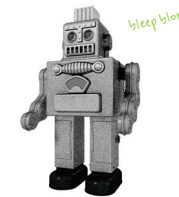
REAL WORLD ANALOGIES



TRUCK CRANE

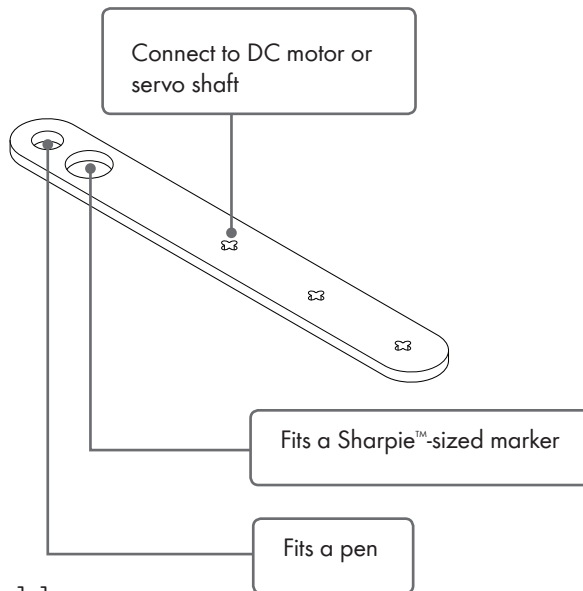
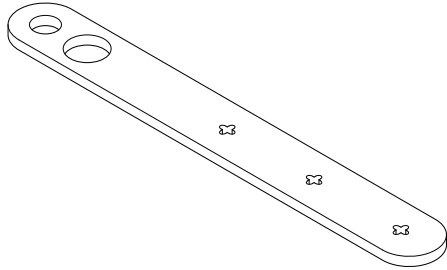


WINDSHIELD WIPERS



ROBOT

a23 MECHANICAL ARM



MEET THE ACCESSORY

The mechanical arm attaches to both the servo and the DC motor shaft, and offers lots of leverage for pushing, pulling, and throwing.

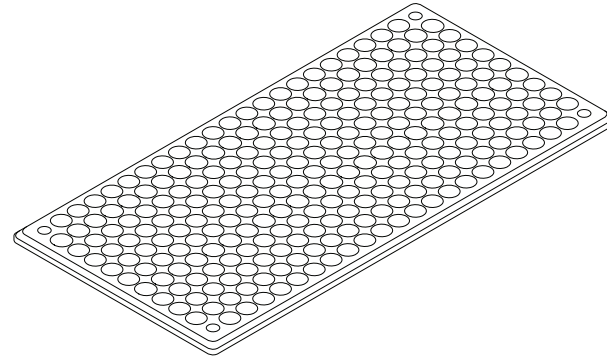
HOW IT WORKS

To attach the mechanical arm to the DC motor, line up the DC motor cross shaft with one of the cross holes in the mechanical arm.

For the servo, line up the T shaft with one of the cross holes in the mechanical arm and press firmly.

The two large holes on the end are perfect for holding pens and markers in place.

a30 MOUNTING BOARD



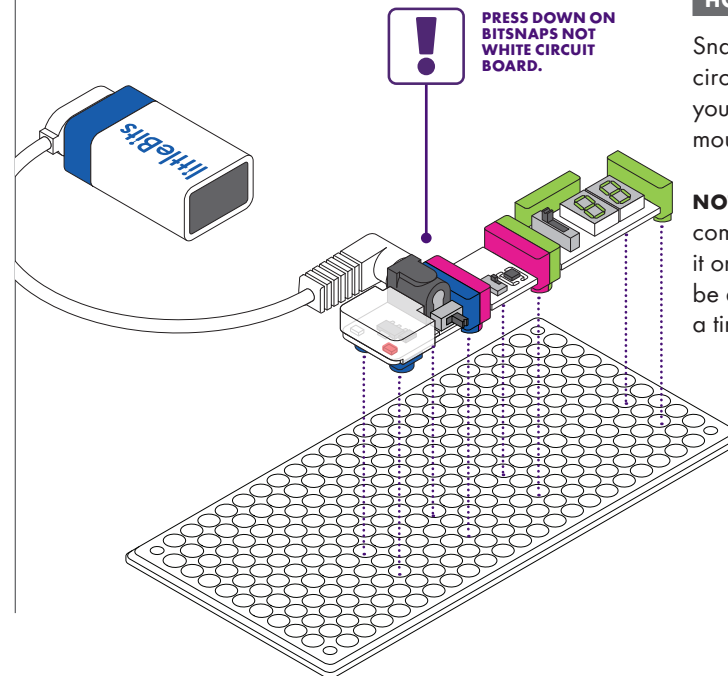
MEET THE ACCESSORY

The mounting board is like the backbone of some of your inventions. It allows you to keep your circuit intact and move it around with ease! It also provides structure which is helpful for building out projects, like a vehicle.

HOW IT WORKS

Snap together your littleBits circuit and press the feet of your Bits into the holes of the mounting board.

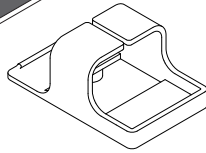
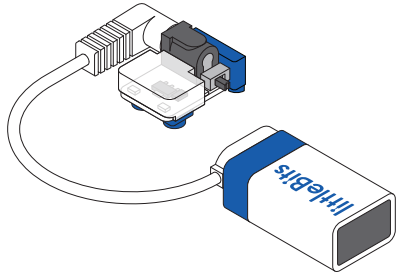
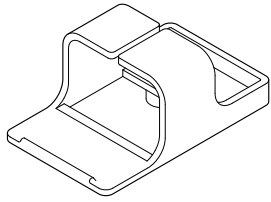
NOTE: Your circuit must be complete before you press it onto the board. You won't be able to add Bits one at a time.



a31 BATTERY MOUNT

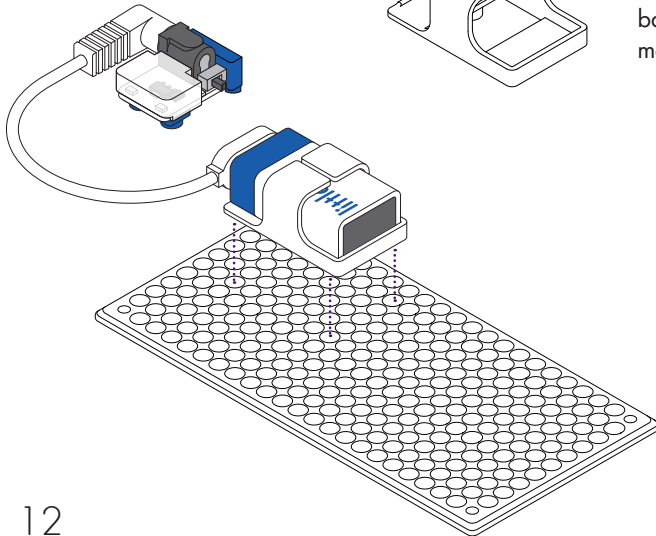
MEET THE ACCESSORY

The battery mount secures the 9-volt battery to the mounting board.



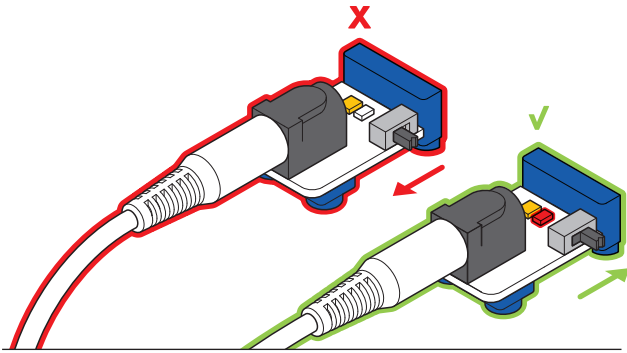
HOW IT WORKS

Slide the 9-volt battery into the opening of the battery mount and press the feet of the battery mount into the mounting board.

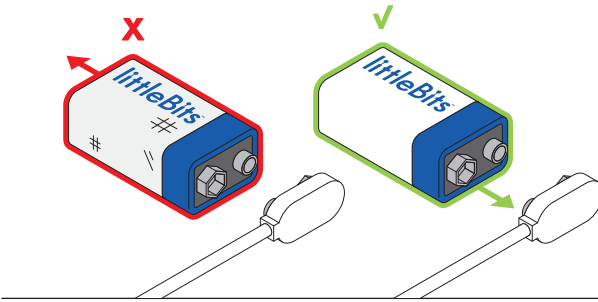


TROUBLESHOOTING

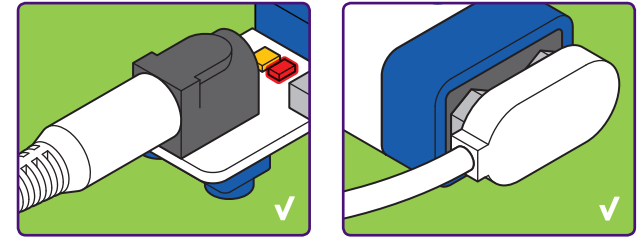
 IN-DEPTH TROUBLESHOOTING AVAILABLE AT LITTLEBITS.COM/FAQ OR ON THE LITTLEBITS INVENT APP.



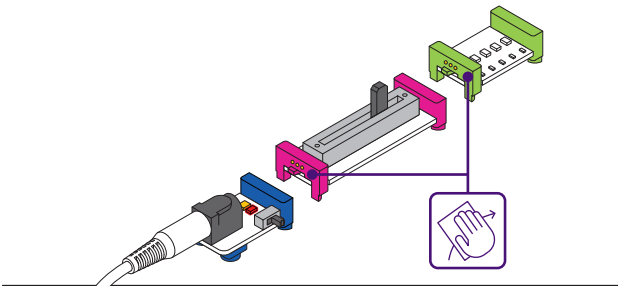
1 MAKE SURE YOUR POWER BIT™ IS ON. You should see a red LED illuminated on the board.



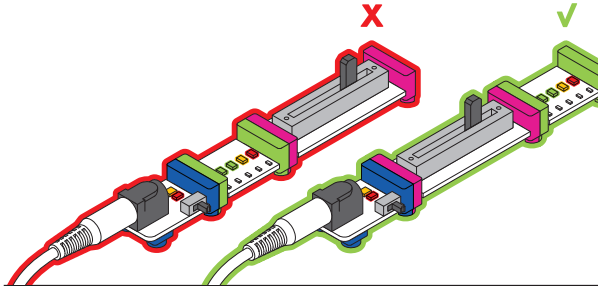
2 TRY SWAPPING IN A NEW 9 VOLT BATTERY. Low batteries can cause a circuit to act erratically. Bits™ have different power demands. For example: a DC motor may appear to not be working while a light still shines brightly.



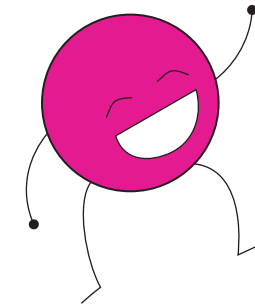
3 ENSURE THE POWER CABLE IS SECURELY FASTENED TO BOTH THE POWER BIT AND THE BATTERY.



4 CHECK YOUR CONNECTIONS. Are all the Bits securely snapped to each other? You can also try gently wiping down the ends of the bitSnaps with a soft cloth (like your sleeve). Sometimes dust gets in the way of a strong connection. Try unsnapping, cleaning the bitSnaps, and snapping it all back together again.



5 MAKE SURE YOUR BITS ARE ARRANGED IN THE PROPER ORDER. Remember that you always need a power Bit & power supply at the beginning of each circuit, and an output Bit at the end. If the last Bit in your chain is an input, then it won't do anything to affect your circuit.



STILL HAVING TROUBLE? Visit littleBits.com/faq or contact our customer service team at support@littleBits.com.