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littleBits™

BIT INDEX

START HERE

POWER BITS

p1 **POWER**

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

p3 **USB POWER**

Power your circuit through a micro USB cable that can be connected to a computer or wall adapter.

INPUT BITS

i1 **SLIDE SWITCH**

The slide switch is a small and convenient way to turn your creations on and off.

i2 **TOGGLE SWITCH**

The toggle switch is perfect for those inventions where you want a sturdy on-off switch.

i3 **BUTTON**

The button Bit is a classic: big, round, and springy for comfortable pressing.

i5 **SLIDE DIMMER**

Slide this dimmer back and forth to control your circuit.

i6 **DIMMER**

Twist this dimmer back and forth to control your circuit.

i7 **REMOTE TRIGGER**

The remote trigger lets you use a common remote control with your Bits.

i11 **PRESSURE SENSOR**

The pressure sensor is a touch-activated Bit. Give its pad a squeeze to activate it.

i12 **TEMPERATURE SENSOR**

The temperature sensor takes a measurement from the environment and translates it into a signal.

i13 **LIGHT SENSOR**

Use this Bit to control your circuits with light.

i14 **BEND SENSOR**

The bend sensor turns on as you flex the long strip.

i16 **PULSE**

The pulse is a switch that opens and closes over and over again.

i17 **TIMEOUT**

The timeout Bit is a settable timer.

i18 **MOTION TRIGGER**

The motion trigger is a sensor that detects the slightest movement around it.

i19 **ROLLER SWITCH**

This Bit has a little lever with a wheel, and activates when something pushes the roller in.

i20 **SOUND TRIGGER**

The sound trigger has a microphone that measures how much noise is around it.

i21 **MICRO-PHONE**

Use this Bit to turn sounds into light or motion, or use it with the speaker Bit like a small megaphone!

i22 **SEQUEN-CER**

This Bit lets you connect to up to eight outputs and control them in sequential patterns.

i23 **THRESHOLD**

Think of the threshold as a toll booth for signal passing through your circuit.

i25 **MP3 PLAYER**

The mp3 player allows you to play your very own mp3 files using littleBits.

i30 **KEY-BOARD**

The Keyboard features 13 switches that make an octave of notes so you can play melodies.

i31 **OSCILLATOR**

The oscillator creates audio tones that can be manipulated with its pitch nob and tune dial.

Use it to invent a...

SYNTH KEYTAR

i32 **FILTER**

The filter affects a note's timbre by changing the relative volume of certain frequencies.

i33 **ENVELOPE**

The envelope modifies the loudness contour of a sound.

i34 **RANDOM**

This Bit has two modes: "noise" (white noise) and "random voltage" that controls Bits.

i35 **DELAY**

The littleBits delay Bit takes incoming audio and repeats it, like an echo.

i36 **MICRO SEQUEN-CER**

The micro sequencer sends out voltages based on the position of each of the four knobs.

i37 **MIX**

The mix Bit allows you to combine two inputs and send them to a single output.

INVENT AN ART MACHINE

CREATE A DOODLE WIZARD – a bot made with DC motors and a pulse that dances, wiggles, and draws up a storm. Add your own artistic flair by changing up some of the Bits and materials to create unique masterpieces.

BITS & MATERIALS

- p1 **POWER**
- a1 battery & cable
- i16 **PULSE**
- a4 screwdriver
- o25 **DC MOTOR**
- a26 mounting board
- a25 wheel (×2)

For complete instructions on this invention and more, please visit **LITTLEBITS.COM/INVENT**

WIRE BITS

w1 **WIRE**

The wire doesn't change the signal in any way – it just carries it over from one Bit to another.

w2 **BRANCH**

The branch Bit lets you connect the output of a single Bit to as many as three others.

w3 **DOUBLE OR**

Double OR is a logic gate. The output is active if either of its two inputs is active.

w4 **DOUBLE AND**

Double AND is a logic gate. It sends an ON signal when its two inputs receive an ON signal.

w5 **MIDI**

Send and receive MIDI messages with the MIDI Bit.

w6 **ARDUINO BIT**

The Arduino Bit brings the power of programing to your littleBits circuits, allowing you to create complex sequences of actions and explore new levels of logic and timing. It also connects your Bits to programs like processing, MaxMSP, Flash, and more.

Use it to invent a...

PONG CONTROLLER

DIY COMPUTER MOUSE

w7 **FORK**

Connect one output to as many as three other Bits to trigger multiple actions at once.

w8 **LATCH**

Use the latch to turn any momentary input into an ON/OFF switch, like a toggle.

w9 **PROTO**

Use the proto Bit to hack into existing Bits or invent a brand new one.

w10 **INVERTER**

Inverter is a very contrary logic Bit. It sends out the opposite of whatever it receives.

w14 **MAKEY MAKEY**

The Makey Makey Bit turns everyday conductive objects (like bananas) into triggers that control your circuit and even your computer. You can connect the Makey Makey Bit to these objects using alligator clips.

Use it to invent a...

CARROT CONTROL PAD

w15 **NOR**

This logic gate sends an ON signal when neither of its two inputs is receiving a signal.

w16 **NAND**

The NAND Bit is a logic gate with two inputs. Think of it as "not and".

w17 **XOR**

The XOR Bit is a logic gate with two inputs. Think of it as "exclusive or".

w18 **CONTROL VOLTAGE**

Integrate your littleBits circuits with other analog synthesizers.

w19 **SPLIT**

The split divides the incoming signal & sends it to the two output bitSnaps.

w20 **CLOUDBIT™**

The cloudBit allows you to connect all of your Bits to the internet. The littleBits Invent app makes things easy. No programming or wiring necessary.

Use it to invent a...

SMS DOORBELL

BING BONG!

w21 **WIRELESS RECEIVER**

The wireless receiver Bit receives a signal from your wireless transmitter.

w22 **WIRELESS TRANSMITTER**

The wireless transmitter Bit sends a signal to your wireless receiver.

w27 **USB I/O**

The USB I/O Bit allows you to record digital audio directly into your computer.

w29 **PERF**

The perf Bit is an easy way to prototype a circuit for the littleBits collection.

OUTPUT BITS

o1 **LED**

The LED (or light-emitting diode) Bit is a very small board that shines a green light.

o2 **LONG LED**

This Bit uses a light-emmiting diode (LED) to turn electricity into light.

o3 **RGB LED**

The RGB LED is a light with adjustable color.

o4 **VIBRATION MOTOR**

With the vibration motor Bit, you can make anything vibrate & buzz.

o6 **BUZZER**

The buzzer converts the electrical signal it receives into a vibration, which creates a buzzing sound.

o7 **IR LED**

The IR LED Bit sends out light with longer wavelengths than visible light.

o9 **BARGRAPH**

The bargraph uses five LEDs to turn electricity into light.

o11 **SERVO**

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

o13 **FAN**

Use the fan to create a gentle breeze, perfect for cooling things off. You can also try taping small things (like stickers or pieces of paper) to the center of the fan for some spinning visuals.

Use it to invent a...

BREEZY BUDDY

FAN OF FORTUNE

o14 **BRIGHT LED**

The bright LED (or Light-Emitting Diode) is a small Bit that shines out a big light.

o15 **UV LED**

Make certain things glow in the dark with this Bit whose light looks purple to the eye.

o16 **LIGHT WIRE**

The light blue light wire is about four feet long and can be bent, shaped, sewn or stapled.

o25 **DC MOTOR**

Use the motor to spin, turn, twist, and roll.

o21 **NUMBER**

The number displays information that it receives from the Bits before it.

o18 **IR TRANSMITTER**

The IR (infrared) transmitter sends a short pulse of modulated infrared light.

o26 **SPEAKER**

The speaker amplifies your sonic explorations.

For more information on all bits, please visit **LITTLEBITS.CC/SHOP/BITS**

INVENT A THROWING ARM

BUILD A LAUNCHER THAT FLINGS PROJECTILES WITH A SERVO AT THE PRESS OF A BUTTON. Set up a tower of cups and try to knock them over. Then modify your launcher to make it even more accurate, powerful, or speedy. Challenge your friends to see who can knock over the most cups.

BITS & MATERIALS

- p1 **POWER**
- a1 battery & cable
- i3 **BUTTON**
- a26 mounting board
- o11 **SERVO**
- a23 mechanical arm
- a24 servo mount
- screws (×2)

For complete instructions on this invention and more, please visit **LITTLEBITS.COM/INVENT**

INVENT A SELF-DRIVING VEHICLE

BUILD A CIRCUIT CRUISER, A VEHICLE THAT GETS AROUND ON TWO DC MOTORS. Add extra features to this lean, mean, mobile machine. Use it to deliver school supplies to your friends, help your teacher pass out papers, or wake up your sleeping classmate.

For complete instructions on this invention and more, please visit **LITTLEBITS.COM/INVENT**

BITS & MATERIALS

- p1 **POWER**
- i5 **SLIDE DIMMER**
- w1 **WIRE**
- o25 **DC MOTOR** (×2)
- a1 battery & cable
- a26 mounting board
- a25 wheel (×2)