Hong Kong Product Design Makeathon 2016-2017

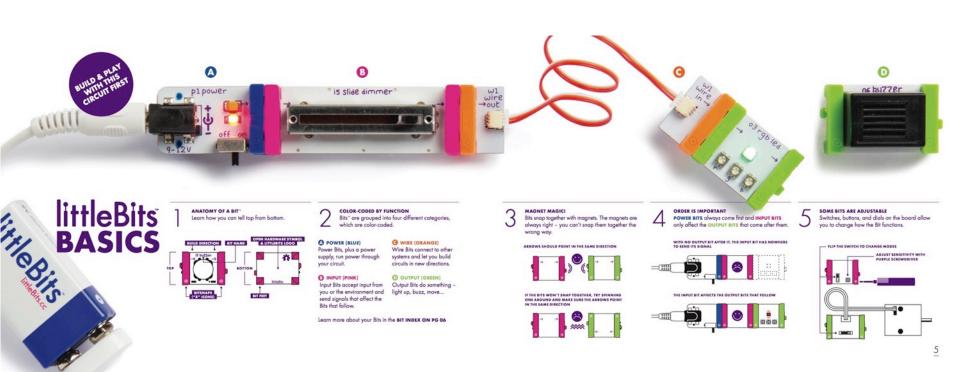
全港中小學產品設計大賽2016-2017

第三場工作坊 19 Nov 2016

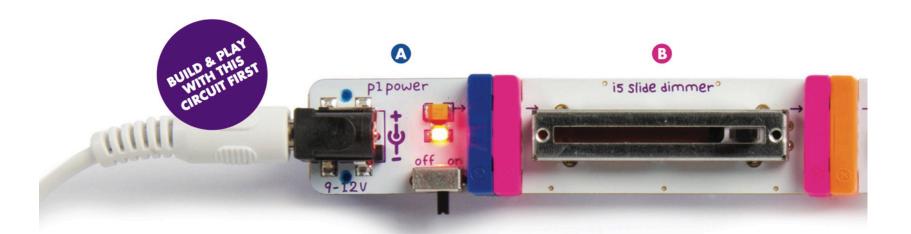


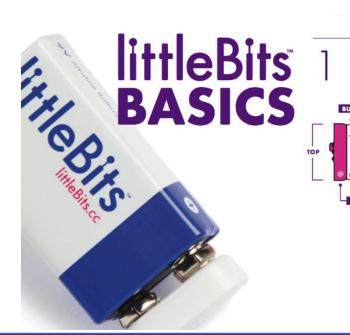


littleBits Basics



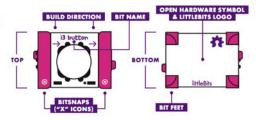






ANATOMY OF A BIT™

Learn how you can tell top from bottom.



2

COLOR-CODED BY FUNCTION

Bits™ are grouped into four different categories, which are color-coded.

A POWER (BLUE)

Power Bits, plus a power supply, run power through your circuit.

(B) INPUT (PINK)

Input Bits accept input from you or the environment and send signals that affect the Bits that follow.

G WIRE (ORANGE)

Wire Bits connect to other systems and let you build circuits in new directions.

O OUTPUT (GREEN)

Output Bits do something – light up, buzz, move...

Learn more about your Bits in the BIT INDEX ON PG 06







MAGNET MAGIC!

Bits snap together with magnets. The magnets are always right - you can't snap them together the wrong way.

ARROWS SHOULD POINT IN THE SAME DIRECTION



IF THE BITS WON'T SNAP TOGETHER, TRY SPINNING ONE AROUND AND MAKE SURE THE ARROWS POINT

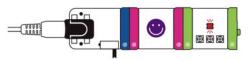


POWER BITS always come first and INPUT BITS only affect the OUTPUT BITS that come after them.

WITH NO OUTPUT BIT AFTER IT, THE INPUT BIT HAS NOWHERE TO SEND ITS SIGNAL

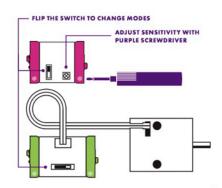


THE INPUT BIT AFFECTS THE OUTPUT BITS THAT FOLLOW



SOME BITS ARE ADJUSTABLE

Switches, buttons, and dials on the board allow you to change how the Bit functions.





littleBits Base Kit



1 dc motor





1 light sensor



1 bargraph



1 button



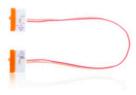
1 dimmer



1 power



1 bright led



2 wires







littleBits Smart Home Kit



P/W W TC

PAIR THE AC SWITCH
WITH THE IR TRANSMITTER
TO CONTROL ANY
HOUSEHOLD OUTLET



MP3 PLAYER



NUMBER

AC & IR







littleBits Smart Home Kit



AC & IR



MP3 PLAYER



NUMBER

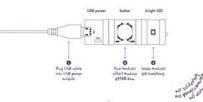






ANYTHING.

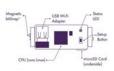
30 SECOND QUICK START GUIDE



SET UP YOUR CLOUDBIT

where we'll guide you through connecting your cloudBit to your local Wi-Fi network using any smartphone or computer. You'll also learn about littleBits Cloud Control: a web app that allows you to control your cloudBit remotely. Then you'll be ready to create your own net-connected devices!

littleBits.cc/cloudsta



LEARN LITTLEBITS BASICS

O CIRCUITS IN SECONDS Color-coded and instantaneous. What usually requires days to breadboard will only take

O COLOR-CODED Modules are grouped into four categories POWER (blue) is needed at the start of

INPUT (pink) modules accept input from you or the environment and send signals to the modules that follow. **OUTPUT** (green) modules DO something-

light up, buzz, move... WIRE (orange) modules expand your reach and change direction.

Power Modules always come first and Input Modules only affect the Output Modules that come after them. O MAGNET MAGIC

O ORDER IS IMPORTANT

The magnets just snap, you can never make a mistake. No wiring, no soldering, no programming (unless you want to!).

TRY THIS CLOUDBIT CIRCUIT



Mass sure share is a



channels, which Means 40, can pair is with up to few AC mittage





Start all of your circuits with this USB power module. Plug your USB power into the wall with the included micro USB cable and power adapter.



CLOUDBIT w20

The cloudBit is the easiest way to create nternet-connected devices. Now you can Snap the Internet to Anything! Retrofit your thermostat to control it remotely, or invent a sound-triggered alarm system that sends you texts-the possibilities are endless. Set up your cloudBit at littleBits.cc/cloudstart.



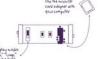
SPLIT w19

The split module sends a single signal along two paths to other modules. You can use one or both of the output bitSnaps" to suit



BUTTON 13

The button module is a classic: big. round, and springy for comfortable pressing! Push it to turn your creation on, and release it to turn it off. Use it with the cloudBit to make an SMS doorbell



MP3 PLAYER 125

Add music and sound effects to your next project with the MP3 player! Just load your MP3 files onto the provided microSD card. Sending a signal to the MP3 player can make it work as an audio player or sampler. Toggle between two volume levels by pressing both the forward and back buttons simultaneously. An audio guide wit detailed info is loaded on the microSD card.



TEMPERATURE SENSOR i12

The temperature sensor outputs a voltage between OV and 5V based on the ambient temperature surrounding the module. Place it before the number module (in "value" mode) to see the current temperature. Note: It may take several minutes to calibrate to the accurate temperature.



SERVO oll

The servo is an adjustable motor that can swing back and forth! It has two modes: in "turn" mode, the input from other modules determines the position of the arm. In "swing" mode, the servo will move back and forth on its own-the input controls the speed. Use it to open your curtains

ADHESIVE SHOES (6) a7

Secure your circuit with shoes! Simply press the feet

of your circuit into the holes

shoes to a surface. Adhesive

backing is one-time use only.

of the shoes and stick the



IR TRANSMITTER ol8

The IR (infrared) transmitter sends a short pulse of modulated infrared light. You can activate it with a trigger from an input module (like a button). Use it to wirelessly activate the AC switch to turn appliances like a lamp or fan on and off! Note: Make sure you pair it with the AC switch before using.

ш

Learn how to pair these at littleBits.cc/bits/intransmitter

AC SWITCH a3

The AC Switch is an IR controlled electrical socker Use it with the IR transmitter to remotely turn on or off anything that plugs into a standard outlet. Note: works with devices that use up to

15 Amps.

USB POWER ADAPTER al4



Connect your USB power module to the power adapter & cable to power permanent creations! The adapter is designed for US electrical outlets only.



SOUND TRIGGER i20

The sound trigger listens to the noise level in your room, and sends an on signal when the volume goes over a certain threshold. You can make that target level louder or softer using the included screwdriver. Use it with the dBit to receive a notification every time your dog barks at home.



THRESHOLD 123

The threshold compares the signal coming into the module's input connector to a voltage you set with the knob. If the input voltage is greater than the selected voltage, the output is set to 5V (high). Use it to make any sensor module into a trigger module.



LIGHT SENSOR il3

The light sensor measures how much light is shining on it. It has two modes: "light" and "dark." In "light" mode, the more light the sensor receives, the higher the signal it sends out. In "dark" mode, it's just the opposite-the signal increases as light decreases.



BRIGHT LED ol4

The bright LED (or "light-emitting diode") puts out a lot of bright white light. Just like our other LED modules, it's a great way to shed some light on your creations, or use it in your circuits for instant visual feedback.



SYNTH SPEAKER o24

The powerful speaker from our Synth Kit amplifies your sonic explorations! You can control the volume with a dial at the front of the module. It also features an output jack that you can connect to headphones, an amplifier, or a computer.



NUMBER o21

The number module features a two-digit seven-segment LED display. In the "read mode, the module displays information about the signal it's receiving. In the "count" mode, the module counts up or down with each trigger. The counter can be reset by receiving a trigger at the reset bitSnap."



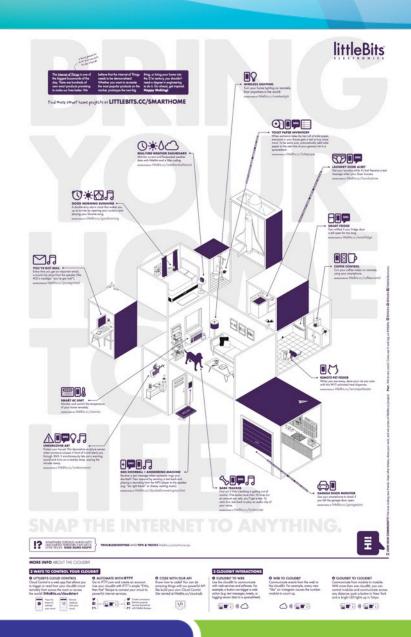










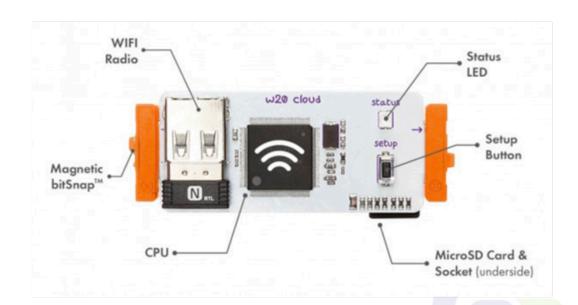






littleBits CloudBit Starter Kit

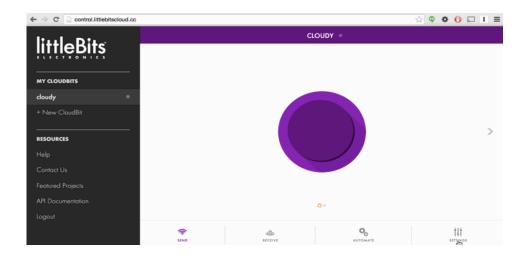






littleBits Cloud Control Platform

http://control.littlebitscloud.cc/



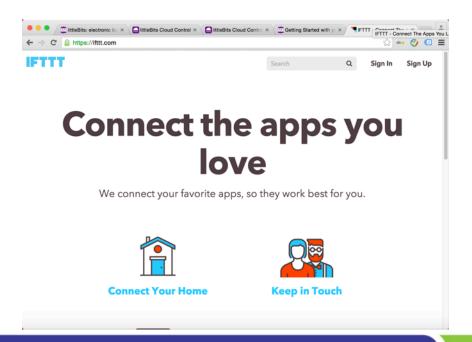
Cloud Control App



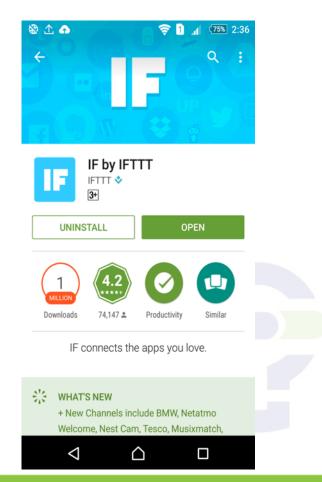




IFTTT Website: https://ifttt.com/



IFTTT App (for Android phone only)





littleBits IR Transmitter







Energenie IR Power Plug



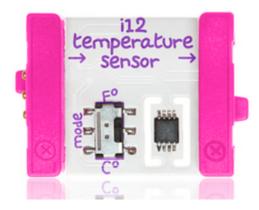




littleBits Sensors











Threshold



