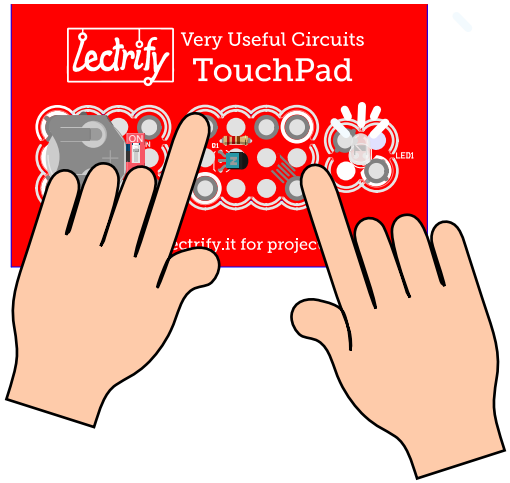
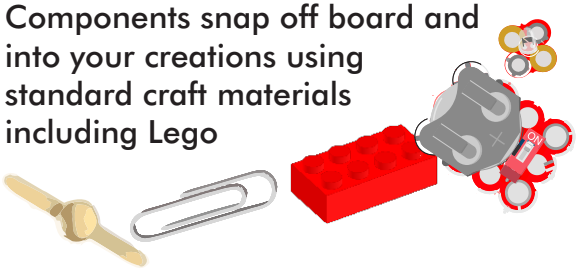
Very Useful Circuits TouchPad

Explore conductivity through a touch sensitive LED light that you can build into your creations!



Electronics for Makers of All Ages

Lectrify is designed for makers! Components snap off board and into your creations using standard craft materials including Lego



Very Useful Circuits enable you to explore engineering through hands-on building.

Each board provides a discrete learning opportunity in a core concept of electrical engineering.

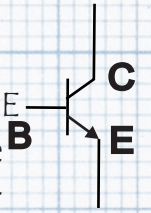
Designed and made in California, USA

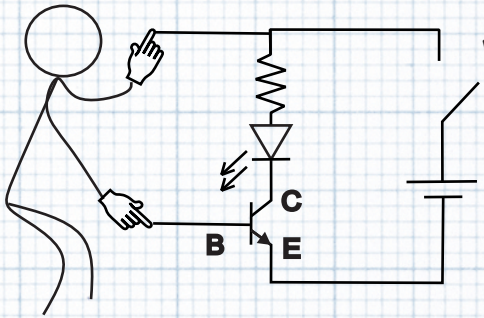
TRANSISTORS

A transistor is a semiconductor device. A small current, or voltage at the base can control a much larger current flowing through the other leads.

This circuit uses an NPN transistor that looks like:

In a circuit diagram, the transistor is shown with a C for Collector, B for Base and E for emitter. A small voltage into the base allows a larger current to pass through the collector into the emitter.



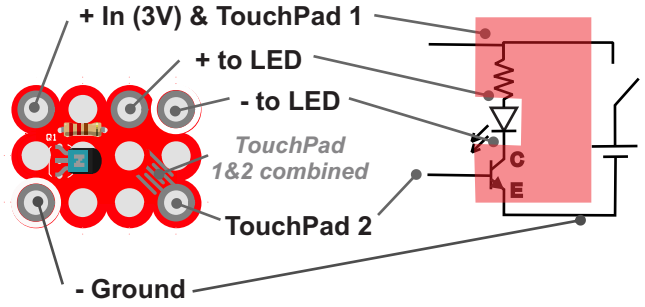


HOW TOUCHPAD WORKS:

When the current at the Base is at 0 Volts, the transistor is in cutoff (OFF) mode.

When a very small current is applied to the transistor Base, it changes it from cutoff (OFF) to saturation (ON) mode allowing the LED to turn on.

CONTROL CIRCUIT



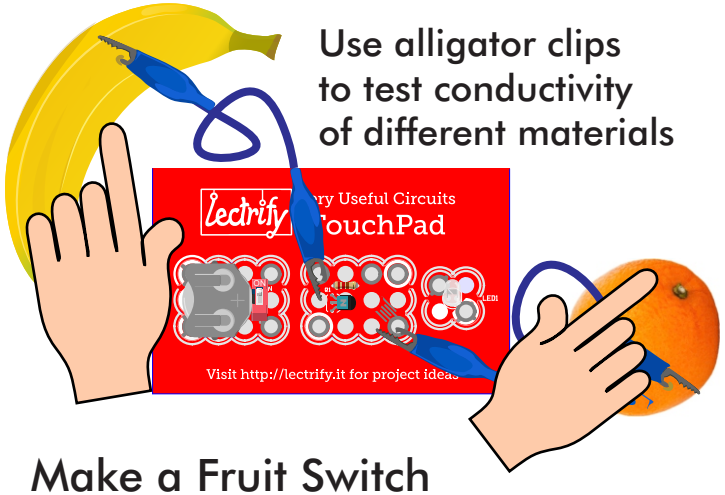
Tag your creations

@lectrifyit

Explore the Very Useful Circuit boards:
TouchPad - Transistor switch
NiteLight - Logic with sensor
Blinker - Capacitor discharge
visit http://lectrify.it/veryuseful

PROJECT IDEAS

Many objects are conductive, but have too much resistance to function as a wire in a circuit. Since the TouchPad requires such small current to switch the transistor, it can be used to explore a wide range of conductive objects.



Use alligator clips to test conductivity of different materials

Make a Fruit Switch

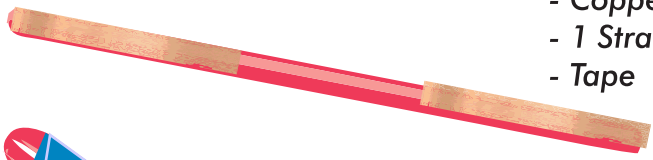
Parts List
- TouchPad Board
- 2 Alligator clips
- Aluminum foil

Clip each touchpad on board to aluminum foil and place side by side. Place fruit on foil touching both pieces of foil.

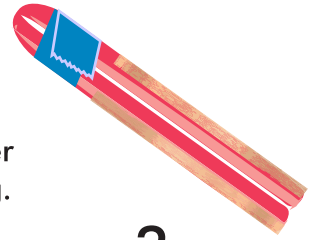
Make a Conductivity Probe

Parts List
- *1 TouchPad Board*
- *2 Alligator clips*
- *Copper Tape*
- *1 Straw*
- *Tape*

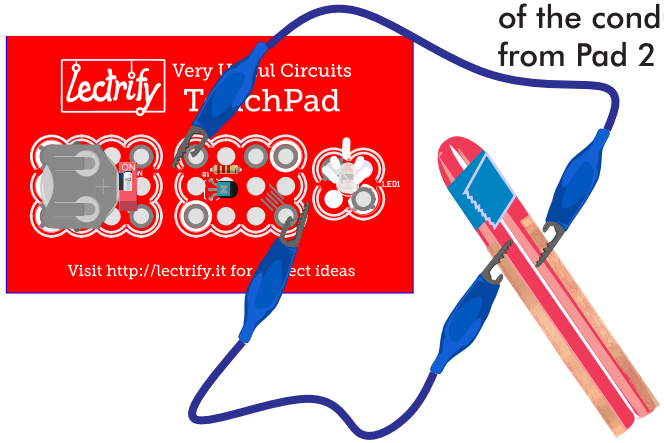
1 Cut Conductive Tape into two 3" pieces and place one each on opposite ends of the straw.

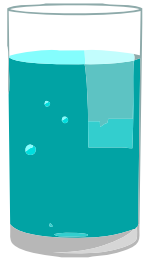


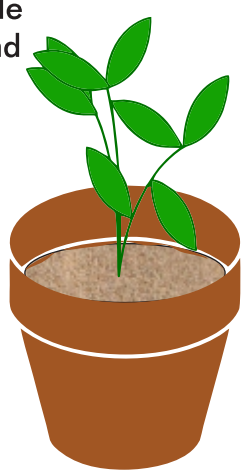
2 **Fold** straw in half keeping copper tape from touching. Keep straw folded with a piece of tape.



3 **Connect** an alligator clip from Pad 1 to one side of the conductive tape and from Pad 2 to the other.







4 **Test** different materials for conductivity.

Is dry soil conductive? How wet does it have to be to be conductive?

Are liquids conductive?

Remove components to extend the functionality of the circuit.

Where could you use a touch activated circuit?

Questions? Email us help@lectrify.it