

A3: What Electronics is Made of: Components

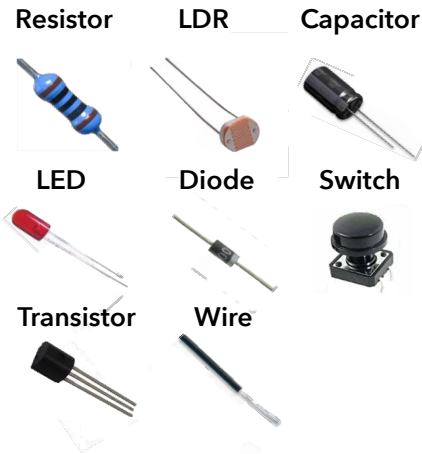
1001-act2 Introduction to Electronics

Summary

In this activity you will be introduced to several basic electronic parts that form the basis of most electronics. The parts will be introduced one at a time to you, after which you will attempt to identify those parts on your JackBord TOP.

What You Need

- 1 x JackBord TOP
- 1 x Resistor
- 1 x Light Dependent Resistor (LDR)
- 1 x Capacitor
- 1 x Light Emitting Diode (LED)
- 1 x Diode
- 1 x Transistor



Instructions

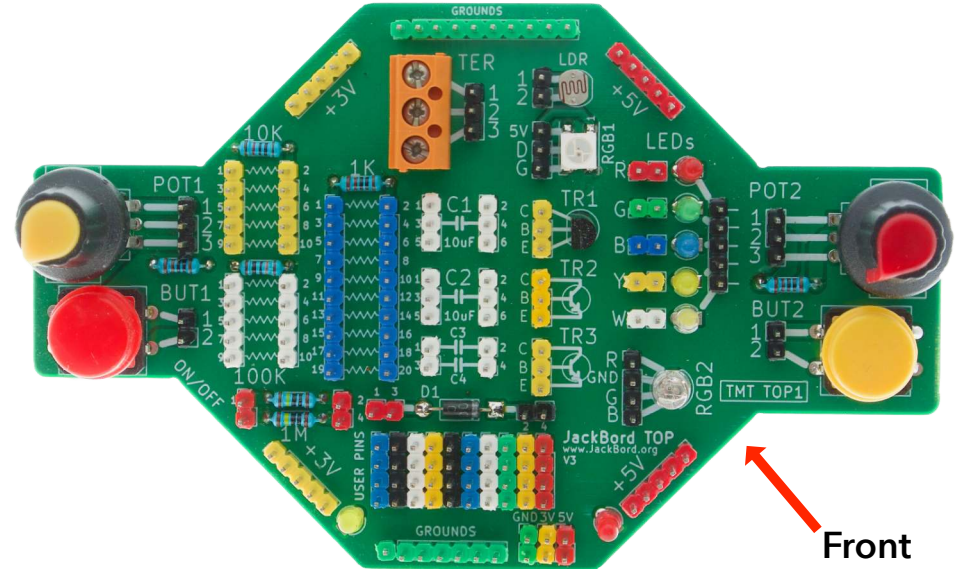
1. Listen to the explanation for each component.
2. Find each component on your TOP and count how many you discover of each type using this table.
3. Check your totals with the teacher, and where there is a big difference, try to find the missing parts.

These may be under the TOP.

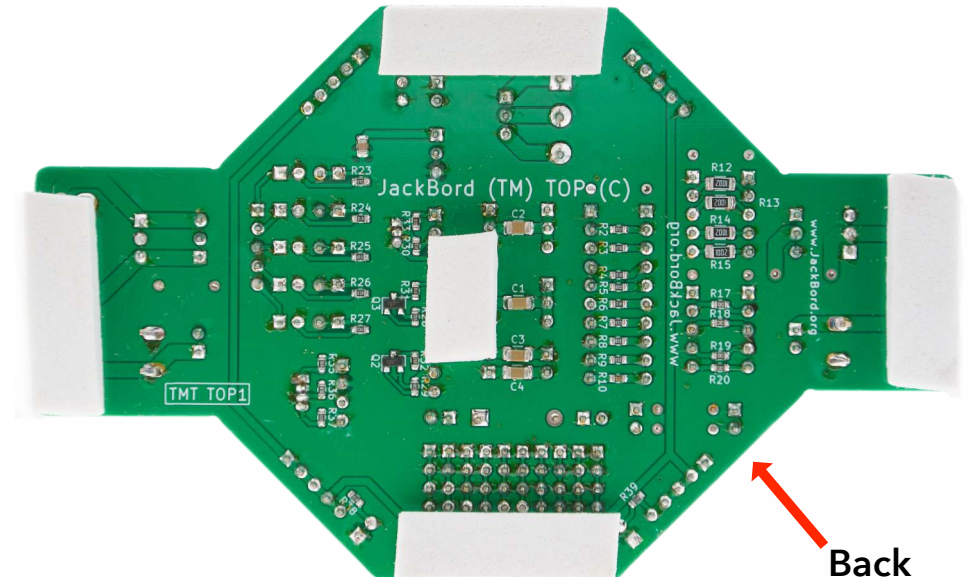
My Parts Count

| Part | Number found |
|------------|--------------|
| Resistor | |
| LDR | |
| Capacitor | |
| LED | |
| Diode | |
| Transistor | |

The JackBord TOP



Front



Back

Electronic Components



Resistor

A resistor impedes the flow of electrons or current in an electrical conductor or wire. In many ways this is very similar to the effect of squeezing a water hose. The tighter the hose is squeezed the lower the flow of water or in the case of resistor the lower the current. Thus the greater the value of the resistor the more it limits the flow of current.



Light dependent resistor LDR

A light dependent resistor (LDR) is a type of resistor whose value of resistance changes with the amount of light falling on it. These allow the amount of light to be measured, for example in a night light.



Capacitor

A capacitor is like a battery in that it can store electricity for short periods of time. But unlike a battery it leaks and so any charge stored escapes quickly. Which is why you don't use them as batteries. But they can release their charge very very rapidly which can be very useful in things like lasers and railguns.



Light Emitting Diode (LED)

Light emitting diodes or LEDs are a special type of diode that emits light when a current is passed through them. These are used in all sorts of electronic devices from radios televisions to computers.



Diode

A diode only allows current to flow in one direction. The band on the end indicates the direction in which the current will flow. In the example on the left the current will flow from the left to the right.



Switch

A switch is simply a means of bringing two conductors or wires together so that current may flow. When you have two pieces of wire and you touch them together that is a switch.



Transistor

A transistor is a type of electronic switch in which there are no moving parts. These are much smaller and much more reliable than a physical mechanical switch. They can also switch on and off very very quickly, in the case of computers, millions of times per second.



Wire

Electrical wire is a conductor made of copper which is protected by a plastic cover. Wires carry electric current in circuits. The TOP does not have wires on it, but the tracks on the TOPs circuit board do the same job. These are the lines on the back of the TOP.