

ESE 141: INTRODUCTION TO ROBOTICS

Professor Mukai

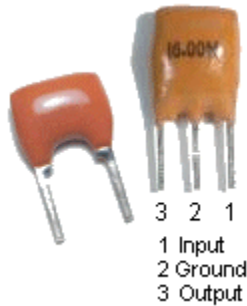
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Parts and Descriptions

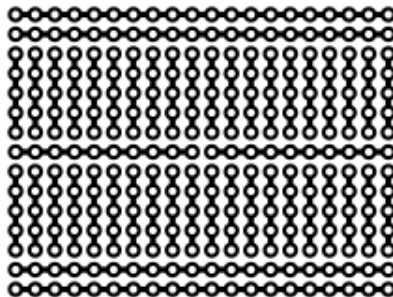
Power switch – a black switch with 3 contacts. It either connects the middle leg to the top leg or to the bottom leg.

Button – simple black button that opens or closes a circuit

Resonator – an electronic component that can produce oscillations at a specific frequency. Ceramic resonators can be found in many circuit boards as they can be used as the source of the clock signal for digital circuits such as microprocessors where the frequency accuracy is not critical.



Breadboard – used for easy prototyping of electronics. It's reusable and doesn't require soldering. The only downside to this is that the wiring has a tendency of becoming detached. The hole patterning for a typical PCB is shown below. There are two types of strips - terminal and bus strips. The terminal strips are in the middle which will hold most of the components. The bus strips provide power to the electrical components. There is a column for ground and a column for power on each side.



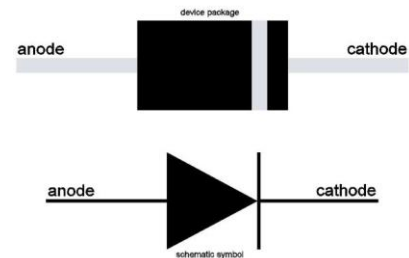
Buzzer - an audio device that produce a single audible tone when a voltage is applied and current passes through it.

Voltage Regulator – designed to automatically maintain a constant voltage level



Electrolytic Capacitor – When there is a potential difference across the conductors, an electric field develops across the dielectric, causing positive charge to collect on one plate and negative charge on the other plate. Energy is stored in the electrostatic field. An ideal capacitor is characterized by a single constant value, capacitance. This is the ratio of the electric charge on each conductor to the potential difference between them.

Diode - The most common function of a diode is to allow an electric current to pass in one direction (called the diode's forward direction), while blocking current in the opposite direction (the reverse direction)



LED – Light emitting diode – is a semiconductor light source

Resistor - a passive two-terminal electrical component that implements electrical resistance as a circuit element. The stripes identify its value in ohms.