Know Your Components

Aim:

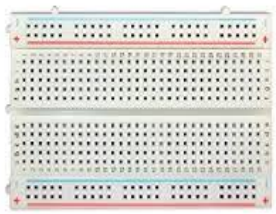
To get idea on each component and their working present in your kit.

Components

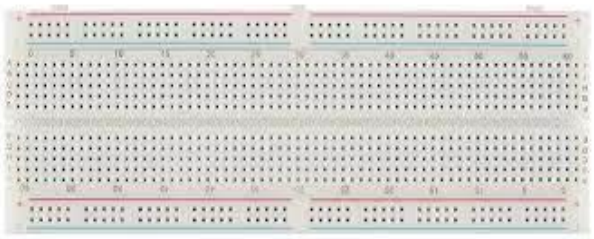
<u>Breadboard</u> : A breadboard is a type of prototyping that requires no soldering connections. Breadboards have sockets that you push the components into, allowing you to remove and change them if needed**.**

- Mostly 3 types of breadboard are used: 170 Pin, 400 Pin, 800 Pin
- Based on number of connections breadboard types are defined.

170

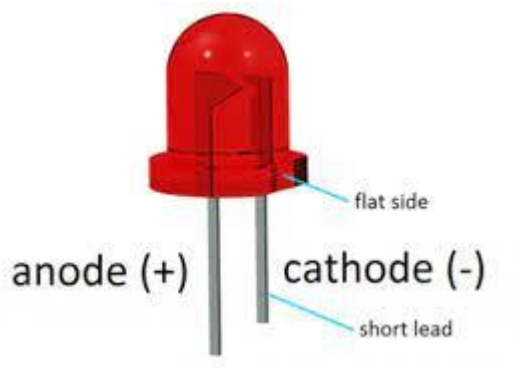


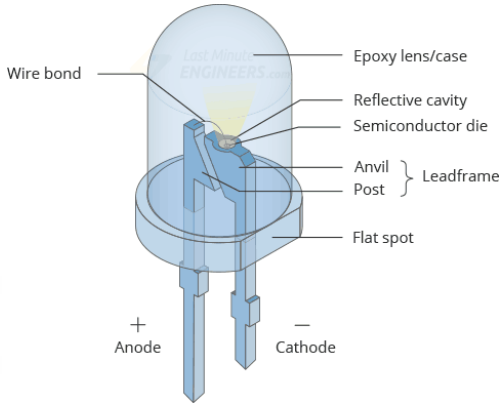
400



800

<u>LED (Light Emitting Diode)</u> : It is a semiconductor device that emits light when current flows through it.





Buzzer: A buzzer is an audio signalling device.

Small Buzzer **Big Buzzer**

Propeller: It is used to make a fan by the help of a motor.

DC Motor (6V): A 6V DC Motor is any of a class of rotary electrical motors that converts direct current electrical energy into mechanical energy.

SPST Switch: The term “SPST” in an SPST switch stands for “Single Pole Single Throw” which includes a single input and a single output.

Jumper Cable: Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

There are 3 types of jumper wires :

- Male to Male
- Female to Female
- Male to Female

MALE TO MALE

FEMALE TO FEMALE

MALE TO FEMALE

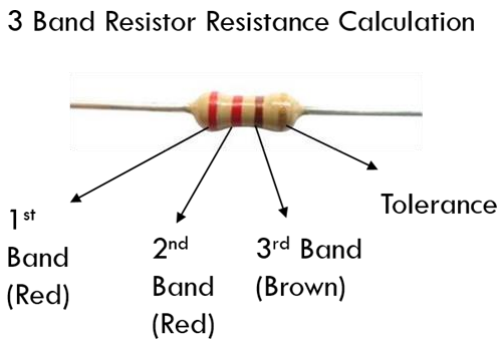
Laser Diode: A laser diode (LD, also injection laser diode or ILD, or diode laser) is a semiconductor device similar to a light-emitting diode in which a diode pumped directly with electrical current can create lasing conditions at the diode's junction.

Push Button: A push-button (also spelled pushbutton) or simply button is a simple switch mechanism to control some aspect of a machine or a process.

<u>9v Battery and Clip</u>: The nine-volt battery, or 9-volt battery, is an electric battery that supplies a nominal voltage of 9 volts.

<u>Resister</u>: A resistor is a component that limits or regulates the flow of electric current in an electrical circuit.

Unit – Ohm (Ω)



Resistance :

1^{st} band value (1^{st} digit) 2nd band value (2^{nd} digit) multiplied by multiplier value of 3^{rd} band. = (1^{st} band)(2^{nd} band) * 3^{rd} band(Multiplier)

= 22 * 10Ω

= 220Ω

Color	Color	1st Band	2nd Band	3rd Band Multiplier	4th Band Tolerance
Black		0	0	x1Ω	
Brown		1	1	x10Ω	±1%
Red		2	2	x100Ω	±2%
Orange		3	3	x1kΩ	
Yellow		4	4	x10kΩ	
Green		5	5	x100kΩ	±0.5%
Blue		6	6	x1MΩ	±0.25%
Violet		7	7	x10MΩ	±0.10%
Grey		8	8	x100MΩ	±0.05%
White		9	9	x1GΩ	
Gold				x0.1Ω	±5%
Silver				x0.01Ω	±10%