SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

TIRUCHIRAPPALLI CAMPUS

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SUBJECT NAME: ELECTRONICS SYSTEMS AND PCB DESIGNS

SUBJECT CODE: 21EEC101J

MINI PROJECT REPORT

TITLE OF THE PROJECT: LED CHASER

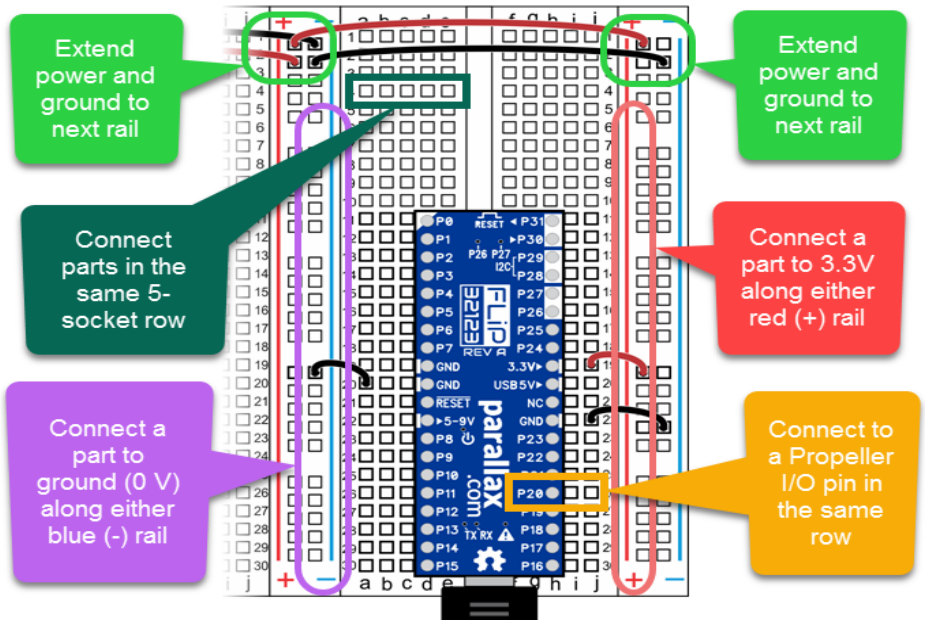
INDEX

ELECTRONICS COMPONENTS REQUIRED

- Bread board
- PCB board
- Connecting Wires
- 9V Battery
- LED blubs
- HRC
- 1k Resistor
- Switch(ON/OFF)
- Battery clips

DISCRIPTIONS

Bread board:



The arrangement of different components on a breadboard can be done by inserting their terminals into the breadboard, so it is frequently known as a plugboard. Breadboard definition is a plastic board in rectangular shape that includes a lot of small holes in it to allow you to place different components to build an electronic circuit is known as a breadboard.

ADVANTAGES:

It is used to make a temporary prototype for the electronics projects.

This is reusable because it doesn't need any soldering.

These boards are less weight because the material used to make this board is a lightweight plastic material.

Testing can be done very easily.

The arrangement of these components can be done very simply into the holes on the board to make the design of a circuit.

It is economical and simple to use.

It does not use any difficult parts.

Drilling is not necessary to connect the components because the holes on the board are embedded already

Modifying can be done very quickly.

We can add or remove the components on the breadboard.

DISADVANTAGES:

These boards are not used for high current applications.

For low-frequency applications, low-frequency boards are not used.

For making simple circuits, it needs more physical space.

The number of connections on the breadboard can make the circuit messy because of several wires.

The connections on the board can be disturbed once the components are connected or removed.

Reliable connections are less and signalling is limited.

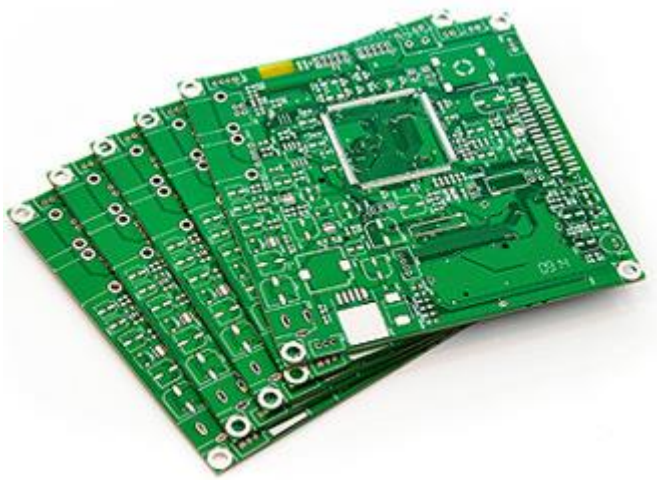
USES:

The main application of a breadboard is to form simple electrical connections among different components so that you can check your circuit before soldering it to the board.

These boards allow different components to be simply placed or removed or the term prototyping instantly comes to mind permanently.

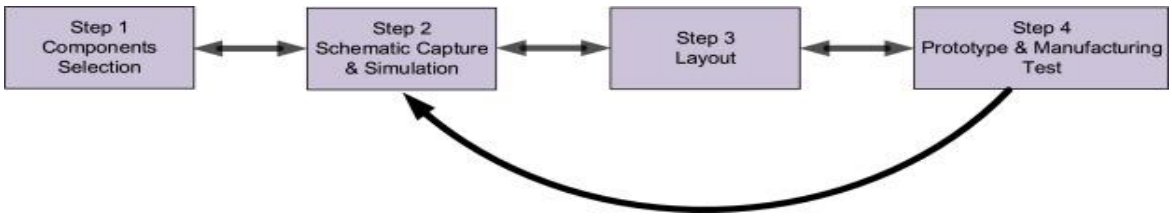
If a designer designs a simple circuit or module then they need to check, so this board offers a fast & cheap solution.

PCB Board:



The PCBs are mainly used to provide electrical connection and mechanical support to the electrical components of a circuit. They are prevalent in electronic devices and can be easily identified as the green-coloured board in most cases.

BASIC FLOW CHART:



ADVANTAGES:

A compact solution.

Saving time and energy.

No loose connection.

A reliable option.

Importance of a good manufacture.

TYPES OF PCB BOARDS:

Single-Sided PCBs.

Double-Sided PCBs.

Multilayer PCBs.

Rigid PCBs.

Flex PCBs.

Rigid-Flex PCBs.

DISADVANTAGES:

Easy to cause handling damage.

Difficult to measure thickness.

Not good for multi assemble processes.

Yield is low.

Connecting Wires:

Wires are used in the electric circuits to make connections between the components are said to be connecting wires.

USES:

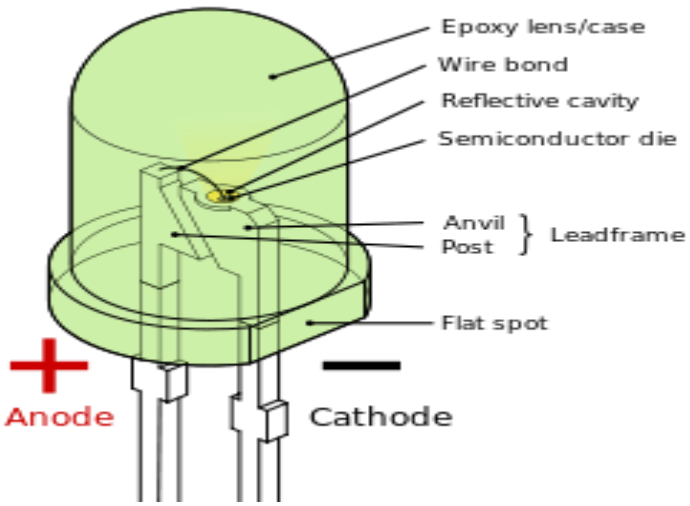
Silver is the best conductor of electricity. (Note: Silver can't be used as connecting wires due to cost effective.)

Copper is the best material for making the connecting wires. (It is affordable in cost.)

BATTERY:

It is the main source of the power to run the circuit.

LED:



LED (Light Emitting Diode) is a semiconductor device that emitd light when electric current is passed through it.

TYPES:

- Miniature LEDs.
- High-Power LEDs.
- Flash LED.
- Bi and Tri-Colour.
- Red Green Blue LEDs.
- Alphanumeric LED.
- Lighting LED.

USES:

- Used for TV back-lighting.
- Used in displays.

ADVANTAGES:

LEDs consume less power, and they require low operational voltage.

No warm-up time is needed for LEDs.

The emitted light is monochromatic.

They exhibit long life and ruggedness.

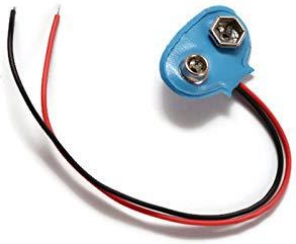
Switch:

It is used to ON/OFF the circuit.

Resistor:

Here k refers to kilo 1k means 1000Ω.

Battery clips:



It helps to give connection between the battery and switch to run the circuit.

HRC:

It is a type of the component in which already the required IC, capacitotors and transistors are already prefixed and solidered.

CIRCUIT DAIGRAM:

OUTPUT: