Electronic components & connections

Spoken Tutorial Project
http://spoken-tutorial.org
National Mission on Education through ICT
http://sakshat.ac.in

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IIT Bombay
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Learning Objectives

We will learn how to use the

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- **Breadboard and its internal connections**

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We will learn how to use the

- **Breadboard and its internal connections**
- **LED on the breadboard**
- **PushButton**
- **Seven Segment Display on the breadboard**

Pre-requisites

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- **Electronic components such as resistors, push-button, LED, etc.**

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- **Open circuit**

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- **Closed circuit**

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- Electronic components such as resistors, push-button, LED, etc.
- Open circuit
- Closed circuit
- Serial and parallel connections

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- Electronic components such as resistors, push-button, LED, etc.
- Open circuit
- Closed circuit
- Serial and parallel connections
- Batteries

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- Electronic components such as resistors, push-button, LED, etc.
- Open circuit
- Closed circuit
- Serial and parallel connections
- Batteries
- Positive and Negative voltage

Components Required

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- **Breadboard**

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- **LED or Tri Colour LED**

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Components Required

- **Breadboard**
- **LED or Tri Colour LED**
- **Push Button**
- **Resistor**

Components Required

- **Breadboard**
- **LED or Tri Colour LED**
- **Push Button**
- **Resistor**
- **Seven Segment Display**

Breadboard

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- **A breadboard is a device for holding the components of a circuit, and connecting them together**

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- **A breadboard is a device for holding the components of a circuit, and connecting them together**

- **We can build an electronic circuit on a breadboard without doing any soldering**

LED

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- **LED stands for light emitting diode**

LED

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- **It emits a coloured light when there is a current flowing through it**

Tri-color LED

Tri-color LED

Tri-color LED

- It has 4 pins. The longest lead is called the common lead

Tri-color LED

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- The remaining three pins are for the red, green and blue colour LEDs

Tri-color LED

- **There are two types of tri-color LEDs:**

Tri-color LED

- **There are two types of tri-color LEDs:**
  - **common anode**

Tri-color LED

- **There are two types of tri-color LEDs:**
  - common anode
  - common cathode

Tri-color LED

Tri-color LED

- In common anode version, the common lead should be connected to the positive voltage

Tri-color LED

- In common anode version, the common lead should be connected to the positive voltage
- In common cathode version, the common lead should be connected to the ground

Resistor

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Resistor

- **A resistor is used to limit the current flowing in the circuit**

Push button

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Push button

- **A push button is a simple switch mechanism, that connects two points in a circuit when pressed**

Push button

- **A push button is a simple switch mechanism, that connects two points in a circuit when pressed**
- **Push button usually comes with four legs**

Seven segment display

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- **The Seven segment display has seven LEDs arranged in the shape of number eight**

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Seven segment display

- The Seven segment display has seven LEDs arranged in the shape of number eight
- There are two types :
  - common anode
  - common cathode seven segment display

Summary

In this tutorial we learnt about,

- **Breadboard and its internal connections**
- **LED on the breadboard**
- **PushButton**
- **Seven Segment Display on the breadboard**

About the Spoken Tutorial Project

- Watch the video available at
  http://spoken-tutorial.org
  /What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial
  project
- If you do not have good
  bandwidth, you can download
  and watch it

Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- **Conducts workshops using spoken tutorials**
- **Gives certificates to those who pass an online test**
- **For more details, please write to contact@spoken-tutorial.org**

Forum for specific questions

- **Do you have questions in THIS Spoken Tutorial?**
- **Please visit http://forums.spoken-tutorial.org**
- **Choose the minute and second where you have the question**
- **Explain your question briefly**
- **Someone from our team will answer them**

Forum for specific questions

- **The Spoken Tutorial forum is for specific questions on this tutorial**
- **Please do not post unrelated and general questions on them**
- **This will help reduce the clutter**
- **With less clutter, we can use these discussion as intructional material**

Acknowledgements

- **Spoken Tutorial Project is a part of the Talk to a Teacher project**
- **It is supported by the National Mission on Education through ICT, MHRD, Government of India**
- **More information on this Mission is available at http://spoken-tutorial.org /NMEICT-Intro**