



SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF MECHANICAL ENGINEERING



CONSUMER ELECTRONICS



Guess Today's Topic????





SPEAKER





LOUD SPEAKER



A **loudspeaker** (commonly referred to as a **speaker** or **speaker driver**) is an [electroacoustic transducer](#), that is, a device that converts an electrical [audio signal](#) into a corresponding [sound](#).

A *speaker system*, also often simply referred to as a "speaker" or "loudspeaker", comprises one or more such *speaker drivers*, an enclosure, and electrical connections possibly including a [crossover network](#).

The speaker driver can be viewed as a [linear motor](#) attached to a [diaphragm](#) which couples that motor's movement to motion of air, that is, [sound](#).

An audio signal, typically from a microphone, recording, or radio broadcast, is amplified electronically to a power level capable of driving that motor in order to reproduce the sound corresponding to the original unamplified electronic signal.

This is thus the opposite function to the [microphone](#), and indeed the *dynamic speaker* driver, by far the most common type, is a linear motor in the same basic configuration as the [dynamic microphone](#) which uses such a motor in reverse, as a [generator](#).





LOUD SPEAKER



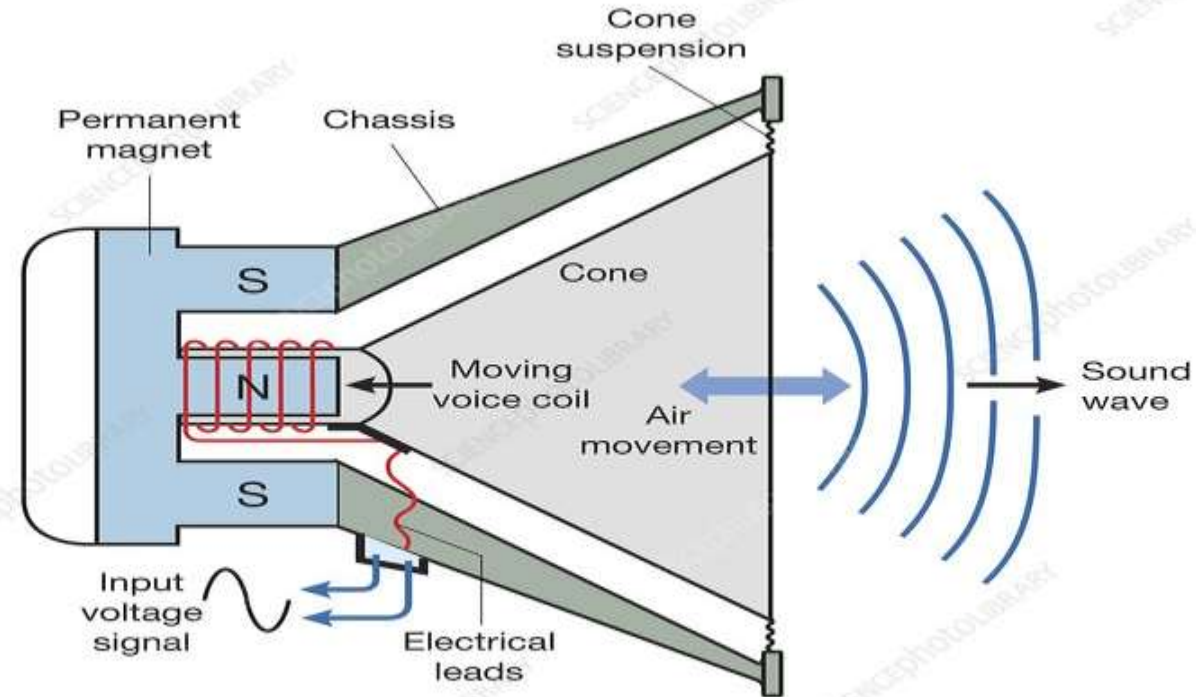
The dynamic speaker was invented in 1925 by [Edward W. Kellogg](#) and [Chester W. Rice](#) issued as US Patent 1,707,570. Apr 2, 1929.

When the electrical current from an [audio signal](#) passes through its [voice coil](#)—a [coil of wire](#) capable of moving axially in a cylindrical gap containing a concentrated magnetic field produced by a [permanent magnet](#)—the coil is forced to move rapidly back and forth due to [Faraday's law of induction](#); this attaches to a [diaphragm](#) or *speaker cone* (as it is usually conically shaped for sturdiness) in contact with air, thus creating [sound waves](#). In addition to dynamic speakers, several other technologies are possible for creating sound from an electrical signal, a few of which are in commercial use.





LOUD SPEAKER

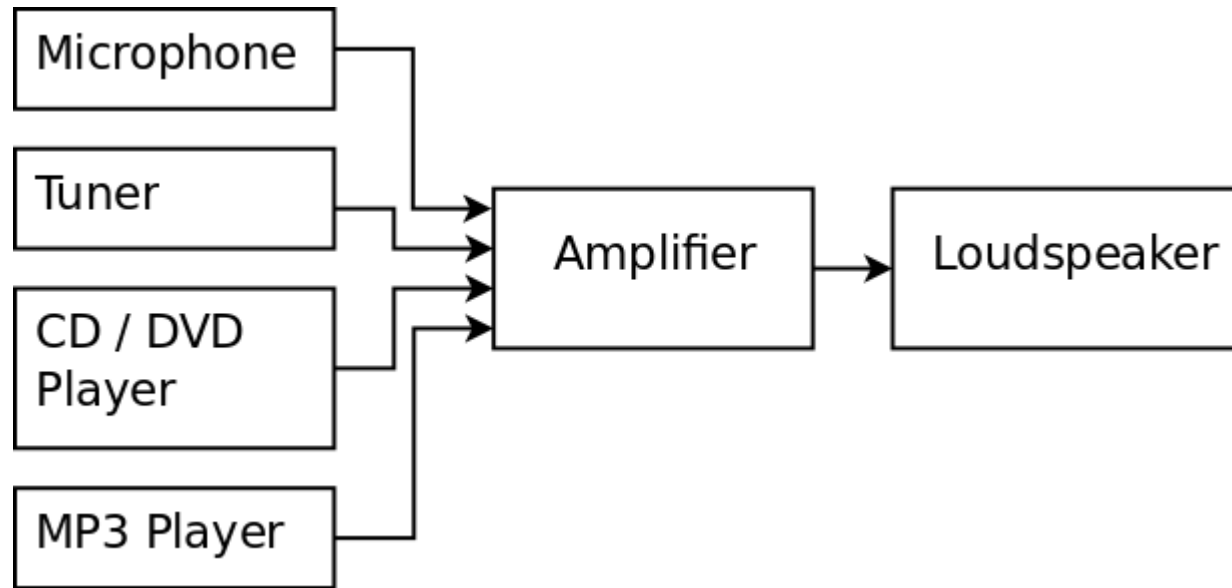




USE OF LOUDSPEAKER



loudspeaker, also called speaker, in sound reproduction, device for **converting electrical energy into acoustical signal energy that is radiated into a room or open air.**





LOUD SPEAKER



In order for a speaker to efficiently produce sound, especially at lower frequencies, the speaker driver must be baffled so that the sound emanating from its rear does not cancel out the (intended) sound from the front; this generally takes the form of a [speaker enclosure](#) or *speaker cabinet*, an often rectangular box made of wood, but sometimes metal or plastic.

The enclosure's design plays an important acoustic role thus determining the resulting sound quality. Most [high fidelity](#) speaker systems (picture at right) include two or more sorts of speaker drivers, each specialized in one part of the audible frequency range .

The smaller drivers capable of reproducing the highest audio frequencies are called [tweeters](#), those for middle frequencies are called [mid-range](#) drivers and those for low frequencies are called [woofers](#). Sometimes the reproduction of the very lowest frequencies (20Hz-~50Hz) is augmented by a so-called [subwoofer](#) often in its own (large) enclosure.





WIRELESS MICROPHONE



In a two-way or three-way speaker system (one with drivers covering two or three different frequency ranges) there is a small amount of passive electronics called a [crossover network](#) which helps direct components of the electronic signal to the speaker drivers best capable of reproducing those frequencies.

In a so-called [powered speaker](#) system, the power amplifier actually feeding the speaker drivers is built into the enclosure itself; these have become more and more common especially as computer speakers.

Smaller speakers are found in devices such as [radios](#), [televisions](#), [portable audio players](#), [personal computers](#) ([computer speakers](#)), [headphones](#), and [earphones](#). Larger, [louder](#) speaker systems are used for home [hi-fi systems](#) ("stereos"), [electronic musical instruments](#), [sound reinforcement](#) in theatres and concert halls, and in [public address systems](#).





DISADVANTAGE



- ➔ **They are bulky in size compare to normal indoor speakers.**
- ➔ They need large space.
 - ➔ They are prone to interference from nearby radio equipments or other radio microphones.
- ➔ They consume large power due to its technical specifications.





ADVANTAGE



- Help to listen the voice clearly
- many people at a time can listen the voice.
- it can be connected with many devices like smart phone,laptop, dekstop etc.





MCQ



1. High frequency speakers are commonly known as
 - a. Tweeter
 - b. Woofers
 - c. Speakers
 - d. Loudspeakers
2. Mid frequency and extend frequency speakers are commonly known as
 - a. Tweeter
 - b. Woofers
 - c. Speakers
 - d. Loudspeakers
3. An electro-acoustic transducer, which converts an electrical audio signal into a corresponding sound is called
 - a. Woofers
 - b. Speakers
 - c. Loudspeakers
 - d. Headphone





*Thank
you*

