What is an Output Device?

Any peripheral that accepts data from a computer and prints, projects, or reproduces it is known as an output device. The output may be audio, video, hard copy – printed paper, etc. Output devices convert the computer data to human understandable form. We give input to the computer using input devices and the computer performs operations on the data and displays the output to the user using the output device.

How Does an Output Device Work?

In order to show the output, an output device uses a signal it receives from the computer to accomplish a task. An output device's fundamental operation is listed below as an illustration.

If you enter 'Hi Geeks' on a computer keyboard (input device), the computer receives the signal.

Once the input has been processed by the computer, an output device—a monitor—is signalled.

The display (output) of the 'Hi Geeks' on the screen occurs once the monitor receives the signal.

Another example of an output device is a printer, which might print that 'Hi Geeks' if it were supported.

If the computer was working and had no output device attached, you could still type 'Hi Geeks' on the keyboard and it would still be processed. Without an output device, you couldn't see what happened or verify the input, though.

Different Types of Output Devices

The various output devices are as below:

1. Monitor

A computer's principal output device is a monitor, often known as a visual display unit (VDU). It displays the processed data like text, images, videos, audios, etc. It makes images by arranging microscopic dots

in a rectangular pattern, known as pixels. The sharpness of an image is determined by the number of pixels. There are two types of monitor viewing screens:

Cathode-Ray Tube (CRT): This type of monitor is based on a cathode ray tube. In which the cathode ray tube generates a beam of electrons with the help of electron guns they strike on the inner surface of phosphorescent of the screen to generate images. The CRT monitor holds millions of phosphorus dotes in three different colors, i.e., red, blue, and green. These dots glow when the beam struck on them and create an image. The main parts of the CRT monitor are the electron gun, fluorescent screen, glass envelope, deflection plate assembly, and base.

Display on a Flat Panel Monitor with a Cathode-Ray Tube (CRT): A flat-panel display is a type of video display with less volume, weight, and power consumption than a CRT. They can be put on the wrist or hang on the wall. Calculators, video games, monitors, laptop, and graphical displays all use flat-panel displays.

Plasma Monitor: It is also a flat panel display but it is based on plasma display technology. In a plasma monitor, a small cell is present in between two glass surfaces and these cells contain a solution of noble gases and mercury. So when the electricity supply on the gas present in the cell converts into plasma and produces UV light that creates an image. It is much better than an LCD monitor. The resolution of this monitor is also high up to 1920 x 1920. It has a good contrast ratio, high refresh rate, etc.

Characteristics of Monitor:

Resolution pixels: Pixels are the smallest element of any image

Size: The size of the monitor is diagonal measurement of a desktop screen is typically 14 to 25 inches.

Refresh Rate: Total number of times per second that an image on a display is repainted or refreshed.

monitor

Monitor

2. Printer

Printers are information output devices that allow you to print data on paper. Or in other words, it is an output device that creates a hard copy of the processed data or information. Printers are divided into two categories:

Impact Printer: In impact printers, characters are printed on the ribbon, which is then smashed on the paper. Or we can say that such type of printer uses a print head or hammer to print the data on the paper. Here to print the paper the hammer or print head strikes an ink ribbon against the paper and the character starts printing. Some of the types of impact printers are:

Dot matrix printer

Daisy wheel printer

Line printer

Chain printer

Impact printers have the following characteristics:

Extremely low consumable costs.

Fairly noisy

It's perfect for large-scale printing because of its inexpensive cost.

Physical contact with the paper is required to form an image.

Non-Impact Printers: Non-impact printers print characters without the use of a ribbon. These printers are often known as page printers because they print a full page at a time. Some of the types of non-impact printers are:

Laser printer

Inkjet printer

Non-impact printers have the following characteristics:

Quicker.

They don't produce much noise.

Superior quality.

Supports a wide range of fonts and character sizes.

printer

Printer

3. Plotter

A plotter is a device that prints high-quality graphics in a variety of color formats. It works in a similar way to a printer, although it has more advanced features. It is used to print large maps, architectural drawings, large-format printing, and create pictures, 3D postcards, advertising signs, charts, and various designs of the internal structure of building machines, as well as create pictures, 3D postcards, advertising signs, charts, and various designs of the internal structure of building machines.

Characteristics of Plotter:

Large size prints can be taken via plotters.

It is slow and expensive.

Plotter

Plotter

4. Projector

A projector is a device that allows users to project their output onto a large area, such as a screen or a wall. It can be used to project the output of a computer and other devices onto a screen. It magnifies texts, photos, and movies using light and lenses. As a result, it's an excellent output device for giving presentations or teaching big groups of people.

Characteristics of Projector:

They are lightweight, and one person can easily take them out of the box, connect them, and hang an image on the wall.

Projectors can be the most cost-effective option for large-screen video in your home.

A small projector mounted on a back shelf or bookcase, or mounted on the ceiling, takes up no area on the floor. It is barely visible when it is not in use.

projector_7239-170

Projector

5. Speakers

Speakers are connected to computers to allow sound to be output. For the working of speakers, sound cards are required. From simple two-speaker output devices to surround-sound multi-channel sets, speakers come in a variety of shapes and sizes. They take audio input from the computer's sound card and output sound waves as audio output.

Characteristics of Speakers:

Speakers are available in a wide range of qualities and prices.

Small, plastic computer speakers with low sound quality are often included with computer systems.

speaker

Speaker

6. Headphones

To hear the sound, use earbuds with your computer, laptop, or smartphone. It enables you to hear the sound without causing any inconvenience to others. To translate electronic signals into sounds without causing inconvenience to others. They can be wired or wireless and can be connected to computers, laptops, mobile phones, etc. They are connected with the devices via Bluetooth.

Characteristics of Headphones:

Stereo phones and headsets are other names for them.

Earphones or earbuds are the names for the in-ear variants.

The term headset denotes a combination of headphones and a microphone used for two-way communication, such as using a telephone.

headphones

Heaphone

7. Sound Card

Sound cards are computer output devices that are inserted into the computer. A sound card, either external or internal, is required to produce sound on any computer (built-in). An external sound card enables for better overall sound generation and is required for wide and clear sound recording, as well as sound without noise and interference.

Characteristics of Sound Card:

To listen speakers or headphones, to play games, watch movies, listen to music, or use audio and video conferencing, we use an internal sound card.

Frequency is a sound card parameter that represents the number of signals the card processes per unit of time. The frequency is expressed in hertz. The frequency of most sound cards is 96 or 192 kHz.

Synthesizers and a variety of electronic musical instruments, such as drums and keyboards, can be connected to your computer using a sound card with standard musical instrument digital interface (MIDI) connections.

soundcard-published

Sound Card

8. Video Card

An extension card via which a computer can transfer graphical data to a video display device like a TV, or monitor. It processes photos and video, as well as other functions that the CPU generally does. As they have a good processing capability and video RAM, Gamers utilize video cards.

Characteristics of Video Card:

Heat sinks are required for video cards with high performance as they generate a lot of heat.

Also known as graphics card and require software installation in addition to the hardware.

When working with huge files, video cards supply a significant quantity of video-only memory that frees up CPU resources, allowing the system to run more effectively.

video-card

Video Card

9. Speech Synthesizer

A speech synthesizer is a computerized device that takes in data, interprets it, and generates audible words. It might be a computer card, a box connected by a cable, or software that works with the computer's sound card.

Characteristics of speech synthesizer:

Any text, predetermined input can be translated into audible speech.

For people who are unable to talk or have impaired vision, it can provide digital verbal communication.

It takes in data, interprets it, and generates sound output.

10. GPS

The Global Positioning System (GPS) is a radio-based satellite navigation system that uses radio signals to pinpoint a specific position. The sender sends a radio signal to satellites, which collect data such as

time, location, speed, and other variables and deliver it to the reception computer for analysis. Because this processed data can be evaluated to obtain information, it is considered as an output device.

Characteristics of GPS:

GPS satellites constantly communicate their position and time.

Solar storms, high storm cover, and other factors impair GPS equipment.

The Global Positioning System (GPS) is based on the mathematical idea of trilateration.

The GPS works independently of telephonic or internet reception and does not need the user to send any data, however, to improve accuracy both technologies can be used.