Other examples of pointing devices

JOYSTICK

A pointing input device that functions the same as a mouse only that it does not have any clickable button but one moves the cursor by just rotating a spherical ball that is located on the top of the device, this device can be rotated in all directions.

Joysticks are mainly used Computer Aided Designing (CAD) or for computer gaming.

LIGHT PEN

A pointing device that is similar to the normal pen but used select menus or draw pictures on the monitor or display screen, mainly found on PDAs and some tablets.

TRACK BALL

A device which is used to move the cursor by just moving /rotating a ball found on the upper side of the device while the other entire device is stagnant.

SCANNER

An input device used to capture data that is in human readable form and convert it into a computer readable form, the data that is recorded may then be stored in a computer or be formatted to form another document or information, scanners are of many types where we have optical and magnetic scanners.

MICROPHONE

An input device used to input sound into a computer or a multimedia device which is then stored in the computer, microphones are mainly to add sound or during communications using the computer.

OUTPUT DEVICES

Output devices are devices that provide processed data to the computer user either as hard copy or soft copy. The following are some of the most used output devices in a computer:

Monitor

A monitor is a type of display screen that is used to display the softcopy information produced in a computer via the computer's video card. The monitor is the main computer output device since the processed data is first seen and confirmed by the user before it can be processed to get a hard copy output.

There are mainly two types of computer monitors i.e. Cathode Ray Tube and Flat Screen Panels.

Cathode Ray Tube Screens

These are the oldest model of computer screens which are large in size, these monitors have some smaller video elements called pixels where the smaller the number of pixels the better the image resolution and vice versa. They are also characterized by higher heat consumption rate.

Flat screen Panels

These monitors are reduced in size that of CRT and can carry them or hang them anywhere.they are divided into two Light Emitting Diode (LED) and Liquid Crystal Display

Liquid Crystal Display

Are screens that use optical effects to convert electrical energy into graphical images /patterns.

Light Emitting Diode

Are screens that convert electrical energy into light,the main advantage of this screens is that they consume less amount of heat than the CRT and LCD and this factor therefore makes them more expensive than both the CRT and LCD.

PRINTERS

Are the other most common output devices since they produce the user output as a hardcopy and permanent.

There are basically two types of printers;

Impact printers

Non-impact printers

Impact printers

These printers are called impact since they print characters into a ribbon after which the characters are pressed on the output paper. Thus this printers come into direct contact with the paper being printed.

They are basically of two types;

Character printers

Line printers

Character printers

The character printers are designed to print only one character at a time after the harmer stroke and they can't print graphics and pictures and hence considered as outdated, this computers are very slow and not mostly used today. They are of two types namely;

Dot matrix

Daisy wheel printers

Dot matrix printers

Printers which print characters in a form of a pattern of dots to form a whole character, these patterns are produced by striking the ink soaked ribbon against the paper with a print head.

However these printers are considered as outdated due to higher heat consumption rate.

Characteristics of Dot Matrix Printers

These are very noise when printing
They are also very slow
They are very cheap
They cannot produce pictures

Daisy wheel printers

This type of printers consists of a wheel that contains some characters that are mounted on the wheel, to print the characters one has to rotate the wheel until the desired character is placed on the printing location, the harmer then hits the disk which hits the ink ribbon after which the character is pressed on the paper by impact.

Characteristics of Daisywheel printers

These types of printers are noisy but not as the dot matrix
They are slightly expensive than dot matrix
Their printout quality is better than dot matrix
They are slow in printing
Cannot print graphics and images.

Line printers

These type of printers print one line at a time.
They are of two types;

Drum printers
Chain printers

Drum Printers

This types of printers are shaped like an ordinary drum and contain characters which are placed on the drum, for one to print, he/she has to rotate the drum where one complete rotation prints one single line, the size of the printer is also equal to the size of the paper.

This printer's character font size cannot be changed and are also fast and expensive.

Chain printers

These are line printers whore characters are placed on a chain, above the chains are some harmers and to print n a paper the paper is place between the harmer and the ink ribbon,
The chain rotates at a higher speed and when a desired character as reached is hit into the paper by the harmer.

Non-Impact printers

Non-impact printers are printers which do not come into physical contact between the printing mechanism and the paper; they are the commonly used printers and can be used for colored printing and black and white printing.
These printers are of two types:

Ink jets
Laser printers

Ink jets

This printer contains ink jets which are sprayed on the paper being printed on by the printer head, printing papers are loaded on the printer from the printer trays depending on the type of printer interface, when a printing work is detected the rollers then pull the paper from the trays and then the paper is adjusted on the printer until the desired image is printed by the printer head. After printing is complete the paper is advance out of the printing area by the rollers.
A stepper motor moves the print head and ink cartridges back and forth during the printing process.

Characteristics of ink jets

- They are fast in printing but not as laser
- Printout quality is good though not as the laser
- They are expensive
- They print in color
- They produce less noise

Laser printers

Laser printers are the most expensive printers to be manufactured
These printers are called laser printers due to the term 'laser' which means a concentrated beam of light to print/write images and text.

How it works

Characteristics of laser printers

They are the fastest and can be compared to the photocopier machine
They are the most expensive printers
They make minimal noise
Has the best printout

The Central Processing Unit

This is the main component of the computer where all execution and processing of computer programs takes place and also controls all other processes in the computer.

Components of the CPU

- Control Unit
- Arithmetic Logic Unit
- Registers

Control unit

Also referred to as the nerve center of the computer, this component supervises and oversees all the activities of a computer and monitors the execution of any program being processed.

Functions of the control unit

- Coordinates and controls the activities of the computer.
- Helps in retrieving and decoding instructions from the internal storage.
- Controls activities of all other units connected to the computer by using the appropriate rule.
- Communicates with I/O devices for transfer of data or results from storage.

Arithmetic Logic Unit

A part of CPU that is responsible for all the mathematical and logical calculations in a computer system.

This part comprises of two parts ;

- Arithmetic Logic Unit – this section performs all the arithmetic calculations including division, addition, subtraction, and multiplication.
- Logic Section – performs all logic operation in a computer such as comparing, selecting, matching of data and sorting of data.

Registers

This unit stores instructions, data and intermediate results in a computer.

It supplies information to other units of the computer when needed.

Computer Memories

RAM and ROM