

Input and Output Devices

Unit-2

Input Devices

- Keyboard
- Mouse
- Trackball
- Joystick
- Digitizing tablet
- Scanner
- Camera

Keyboard

- It is the primary and most friendly online input device.
- Keyboards are of two types:
 - Serial Keyboard-It sends the data bit by bit in a serial fashion
 - Parallel Keyboard-It sends all the bits of the data simultaneously on separate lines.

Mouse

- It is a handheld device with a roller on its base.
- It is a pointing device and is used for controlling the cursor on the screen.
- It also consists of many buttons for various commands

Trackball

- Trackball, also known as crystal ball is another form of locator.
- It is a modified joystick and the user can rotate it in any direction to input coordinates to the computer system.
- Generally notebook computers come with attached trackballs.

Joystick

- It is similar to a large toggle switch.
- It can be moved in any direction along the grooves present on it.
- A potentiometer present in the joystick senses the movement in the stick and gives appropriate commands
- Springs are used to bring the joystick to its original position

Digitizing Tablet

- It is a flat surface over which stylus or hand cursor is moved.
- A transducer (pressure sensitive switch) senses the movement and causes a corresponding movement on the screen.

Scanners

A scanner is an input device that is used to capture images and translate them into a digital format. Various uses of scanners are

- Copying
- Archiving
- Research
- Sharing Images

Camera

A digital camera can also be used as an input device to capture images and transfer them in digital form to a computer for editing and storing.

Monitors

Type	Advantages	Limitations
Raster Scan	High Brightness , low cost and high quality colors	High memory and processing requirements, stair-stepping lines
Vector Displays	High Brightness , high quality resolution, high quality animations possible	High memory and processing requirements. It flickers on a large drawing.
Storage	Low memory and processing requirements, average cost, high quality resolution	Low brightness, low contrast. Does not support selective erasing and dynamics.

Video Standards, VGA & SVGA

- Video Standard is a standard for video display adapters. It is used by software developers to anticipate how their programs will appear on the screen.
- VGA stands for Video Graphics Array. It is a computer chipset standard for displaying color graphics.
- SVGA stands for Super Video Graphics Array. It provides a better resolution than VGA.

Types of Screen

The different types of screens are:

- CRT (Cathode-Ray tubes) – These are large old TV like monitors. These are large and bulky and use vacuum tube technology.
- LCD (Liquid Crystal Display) – These are the new generation flat screen.
- LED (Liquid Emitting Diode) – These are the latest monitors and produces light directly from electricity using diodes.

Printers

Printers are of two types:

- Impact Printer
 - Line Printer
 - Character Printer
- Non-Impact Printer
 - Inkjet Printer
 - Thermal Printer
 - Laser Printer

Impact Printers

These printers produce the output by pressing a print element on an inked ribbon against the face of a continuous paper form. The impact of a hammer against the ribbon squeezes ink onto the paper.

Line Printers: It produces line at a time of printed output. A chain or a drum of letters pass at a high speed in front of a row of hammers. There is one hammer for every print position in the printer.

Chain Printer: A closed circular chain having more than one complete character sets revolve continuously in front of the print line.

Drum Printer: A complete character set is embossed around the circumference of a drum at every print position. The drum continuously revolves in front of the print line.

Impact Printers

Character printer: It produces character at a time of printed output. The printed head moves across the page, line by line, printing one character at a time. They are bidirectional printers.

Letter Quality printer: The letter quality or continuous character or solid front type printer is a daisy wheel printer. It is a very high quality but equally slow printer. The characters are arranged in the form of spokes radiating out from the central hub.

Dot Matrix Printer: This type of printer creates character from a set of dots. The print head contains a vertical array of pins. The print quality is not good. It is not available for heavy duty printing.

Non-Impact Printer

The technologies used in non-impact printers are just opposite to that of impact printers.

Inkjet Printer: It produces character by shooting small droplets of ink onto the paper. One of the many ways of shooting ink is bubble ink jet and piezoelectric ink jet technology. Its main limitation is ink clogging.

Thermal Printer: It uses heat to make a mark on heat sensitive paper. The print head contains needles and is pressed against the paper. It is comparatively quieter but requires heat sensitive paper.

Laser Printer: It is a page at a time printer and is similar to a xerox machine. It is an outgrowth of electrostatic copier technology. They are reliable and give high quality output.

Graphical Processing Unit(GPU)

It is a processing unit used in mobile phones, personal computers, workstations, etc. which is responsible for the on-screen images.

Port

Port is a part of a computing device available for connections to peripherals such as input and output devices. It is specialized and is a single port is used for a single device. They are used to connect monitors, keyboard, mouse, webcam, etc.

Hard Disk

It is a secondary data storage device that stores and retrieves data using magnetic storage. It is the main storage device that can store a large amount of data.

Disk

Disk refers to a category of storage in which data is recorded on rotating disks by various methods. Most common disks are floppy disks, compact disks, blue-ray disks. Each have an increasing degree of storage capacity.

Cards

Cards are expansion device that provide a computer with extra capabilities. Some examples are-

- USB cards
- Firewire cards
- Parallel cards
- Graphics card