Input Devices

Input Devices

Mouse

Keyboard

Joystick

Light Pen

Touch Pad

Microphone

Track Ball

Scanner

Digital Camera

Input Devices

- Machines that feed data into the computer
- For Example

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

- Common and very popular input device
- Helps in inputting data to the computer
- Layout of the keyboard is like that of traditional typewriter
  - some additional keys provided for performing additional functions
- Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.
- The keys on the keyboard are as follows:

  - Typing Keys
  - Numeric Keypad
  - Function Keys
  - Control keys
  - Special Purpose Keys

Keyboard keys

Sr.no	Keys	Description
1	Typing Keys	These keys include the letter keys (A-Z) and digit keys (0-9) which generally give same layout as that of typewriters.
2	Numeric Keypad	It is used to enter numeric data or cursor movement. Generally, it consists of a set of 17 keys that are laid out in the same configuration used by most adding machines and calculators.
3	Function Keys	The twelve function keys are present on the keyboard are arranged in a row at the top of the keyboard. Each function key has unique meaning and is used for some specific purpose.
4	Control keys	These keys provide cursor and screen control. It includes four directional arrow keys. Control keys also include Home, End, Insert, Delete, Page Up, Page Down, Control(Ctrl), Alternate(Alt), Escape(Esc).
5	Special Purpose Keys	Keyboard also contains some special purpose keys such as Enter, Shift, Caps Lock, Num Lock, Space bar, Tab, and Print Screen.

Mouse

- Popular pointing device.
- Famous cursor-control device
- A small palm size box with around ball at its base which senses the movement of mouse and sends corresponding signals to CPU when the mouse buttons are pressed.
- It has two buttons called left and right button and a wheel is present between the buttons.
- Used to control the position of cursor on screen
- cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of keyboard.

Joystick

- Apointing device used to move cursor position on a monitor screen
- It is a stick having a spherical ball at its both lower and upper ends
- The lower spherical ball moves in a socket
- The joystick can be moved in all four directions
- The function of joystick is similar to that of amouse
- Mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

- A pointing device
- Similar to a pen
- Used to select a displayed menu item or draw pictures on the monitor screen

Track Ball

- An input device
- Used in notebook or laptop computer, instead of a mouse.
- This is a ball which is half inserted and by moving fingers on ball, pointer can be moved.
- Since the whole device is not moved, a track ball requires less space than a mouse.
- A track ball comes in various shapes like a ball, a button and a square.

Scanner

- An input device
- Works more like a photocopy machine.
- used when some information is available on a paper and it is to be transferred to the hard disc of the computer for further manipulation
- Scanner captures images from the source which are then converted into the digital form
- These images can be edited before they are reprinted.

Digitizer

- An input device
- Converts analog information into digital form
- It is used to convert hand drawn images into the format which is suitable for computer processing.
- Stylus is used to draw images
- Also known as Tablet or Graphics Tablet because it converts graphics and pictorial data into binary inputs
- A graphic tablet as digitizer is used for doing fine works of drawing and image manipulation applications.

Microphone

- An input device
- Input sound that is then stored in digital form
- Used for various applications like:
  - Adding sound to a multimedia presentation
  - For mixing music

MICR

Magnetic Ink Card Reader (MICR)

- An input device
- Used in banks because of a large number of cheques to be processed every day

Working??

- The bank's code number and cheque number are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.
- This reading process is called Magnetic Ink Character Recognition (MICR).
- The main advantages of MICR are that it is fast and less error prone.

OCR

Optical Character Reader (OCR)

- An input device
- Used to read a printed text

Working??

- OCR scans text optically character by character, converts them into a machine readable code and stores the text on the system memory.

Bar Code Reader

- A device used for reading bar coded data (data in form of light and dark lines)
- Used in labeling goods
- scans a bar code image, converts it into useful information
- May be a hand held scanner or may be embedded.

OMR

Optical markreader (OMR)

- OMRis a special type of opticalscanner
- Used to recognize the type of mark made by pen or pencil
- Used where one out of a few alternatives is to be selected and marked
- It is specially used for checking theanswer sheets of examinations having multiple choice questions

Output Devices

Output Devices

Out Put Devices

Any peripheral device

That receives or displays output from a computer

Below is a listing of all the different computer output devices:

- Headphones
- Monitor
- Plotter
- Printer
- Projector
- Speakers

Headphones

- Referred to as **earphones, headphones**
- A hardware device
- Either plugs into your computer (line out) or your speakers
  - Allow you to privately listen to audio without disturbing anyone else.
- A transducer convert the electrical signal into sound

Headphones

Advantages

- Sound can listen by only the user
- Portable: light weight so easy to carry
- Can be use while moving
- Low price

Disadvantages

- Too loud music can result in hearing problems
- Often not aware of surrounding noises such as car horn
- Annoying sound if head phones are not properly fitted in the ears or if music is too loud
- If attach to heavy device cannot use while moving

Monitors

Commonly called as Visual Display Unit(VDU)

The main output device of a computer.

- It forms images from tiny dots, called pixels
- Pixels are arranged in a rectangular form
- Sharpness of the image depends upon the number of pixels

Different shapes, size and forms

There are two kinds of viewing screen used for monitors.

- **Cathode-Ray Tube (CRT)**
- **Flat- Panel Display**

CRT

- Made up of small picture elements called pixels
- More pixels per inch (PPI), resulting a high quality.
- High resolution gives better image clarity.
- Resolution refers to the number of pixels in an image.
- It is basically a video displaying device.
- It generates colors.

Flat Panel Display Monitor

- Reduced volume, weight and power requirement
- Hang them on walls or wear them on your wrists
- Current uses of flat-panel displays include calculators, video games, monitors, laptop computer, graphics display.

The flat-panel display is divided into two categories:

- Emissive displays e.g. LED
- Non-emissive displays e.g. LCD

Flat Panel Display vs. CRT Monitor

Topic	CRT	LCD
Size	Because of the CRT in a CRT monitor the physical size of these displays is much larger than an LCD and usually awkward on small desks.	LCD monitors are much thinner than CRT monitors, being only a few inches in thickness (some can be near 1 inch thick).
Weight	A CRT monitor can weigh 40 pounds or more	LCD monitors can be pretty light, weighing as little as 8 to 10 pounds.
Price	the price of most CRT monitors is very cheap.	LCD monitors are a newer technology and have more demand so will be more expensive than a CRT.
Power	A 17" CRT monitor will use as much as 80 watts, depending on the age.	LCD monitors are very energy efficient. A 19" LCD monitor only uses about 17 to 31 watts on average.

Flat Panel Display vs. CRT Monitor

Topic	CRT	LCD
Viewable area	The frame around the glass screen of the monitor causes the viewable area of the screen to be smaller than an LCD.	LCD monitors have a slightly bigger viewable area than a CRT monitor.
Picture	Because of the older technology most CRT monitors will not have as good as quality as picture as most LCD displays.	Depending on the quality of the LCD monitor, the picture quality can be quite superb and amazing, almost like looking out a window.

Plotter

- Special type of printer that help to draw images of high quality on large paper draws pictures on paper based on commands from a computer
- Similar to a printer that uses a pen, pencil, marker or other writing tool to make a design
- Use for vector graphics drawing
- Used in CAD, Maps and other print jobs
- Used to print designs of ships and machines
- Earthquake Reading

Plotter

- More expensive than printers
- Used by engineers, architects and mapmakers
- Different from the printer as it uses pen that can be raised, lowered or moved across to draw continues lines
- Pen is moved electronically by the computer.

Three types of printer include

- **Flatbed plotter:** paper remain still while thepen move
- **Drumplotter:** roll the paper over thecylinder
- **Pinch roller plotter:** mixture of two types of plotter

Plotter

Advantages

- High quality images can be drawn
- Large size picture can be print

Disadvantages

- Slower than printer as each line is drawn separately
- Expensive than computer
- Not produce high quality text printout

Printer

- A **printer** is responsible for taking computer data and generating a hard copy of that data
- Printers are one of the most used peripherals on computers
- Commonly used to print text, images, and photos
- Today, the most common printers used with a computer are inkjet and laser printers

Types of printers

Printers can be divided into two main groups, **impact printer** and **non-impact printer**.

- **Impact printer** produces text and images when tiny wire pins on print head strike the ink ribbon by physically contacting the paper.
- **Non-impact printer** produces text and graphics on paper without actually striking the paper.

Printer

Advantages and disadvantages of impact printer

Advantages	Disadvantages
• Less expensive • Can make multiple copies	• Noisy • Print quality lower in some types • Poor graphics or none at all • Slow

Advantages and disadvantages of non-impact printer

Advantages	Disadvantages
• They produce no-noise during printing • Can handle graphics and often a wider variety of fonts than impact printers • Fast	• More expensive • Occupies a lot of space • The cost of maintaining it is high

Printer

Example of Impact Printers:

- Dot-Matrix Printers
- Daisy-wheel Printers
- Line Printers
- Drum Printers
- Chain Printers

Example of Non-Impact Printers:

- Ink-jet printers
- Laser Printers

Printer

Ink-jet printers

- Printing with reduced levels of quality and speed.
- Cheaper to buy than colour laser printers

Laser printers

- Quite expensive to buy and run
- Produce a high quality output
- Quiet
- Fast.

Dot matrix printers

- Not so common today.
- Noisy
- Low quality
- Cheap to run
- Used when carbon copies or duplicates such as for wage slips.

Projector

- Often no larger than a toaster and only weighing a few pounds
- Take images generated by a computer and reproduce them on a large, flat (usually lightly colored) surface
- For example, **projectors** are used in meetings to help ensure that all participants can view the information being presented

Projector

Advantages

- **Largest possible picture.** Front projectors generate the | biggest possible image size. You can use them to create the very large screen experience of a commercial movie theater in your own home.
- **Low cost.** Believe it or not, a front projector can be the least expensive alternative for big screen video in your home.
- **Space saving.** A small projector that is mounted on a coffee table, or mounted on a ceiling, takes up no floor space in the room.
- **Easy to install**
- **Light weight**

Projector

Disadvantages

- **Dark room often required.** Front projectors look their best in a darkened room, just like a movie theater.
- **Maintenance required.** Most projectors require maintenance attention that flat screen and regular televisions do not.
- **Separate audio system required.** Most projectors either have no audio on board.
- So most people who opt for a projector are also setting up a separate surround sound audio system to go with it.

Speakers

- A hardware device connected to a computer's sound card that outputs sounds generated by the computer.
- As multimedia and games became popular, higher quality computers speakers began to be released that required additional power.
- Because computer sound cards are not powerful enough to power a nice set of speakers today's speakers are self-powered and relatively small in size.

Speakers

Advantages

- They are provided with the computer.
- They're very simple to operate.
- They help blind people who would otherwise have difficulty using a computer.

Disadvantages

- They can take up a fair amount of desk-space, compared to headphones.
- They can distract people around you therefore disrupting a communal work area.

Memory Card

- A **memory card** or **flash memory card** is a solid-state electronic flash memory data storage device used with digital cameras, handheld and Mobile computers, telephones, music players, video game consoles, and other electronics.
- Nowadays, most new PCs have built-in slots for a variety of memory cards; Memory Stick, CompactFlash, SD, etc.
- Some digital gadgets support more than one memory card to ensure compatibility.

Memory Card

Advantages:-

- Small in size thus occupy less space.
- Small size but large data storagecapacity.
- Even work on players made enabled to read memorycard.
- Good brand's memory work really superb and easily andfast.
- Cheaper rates good quality
- Non-volatile
- Require less amount ofpower
- Highly portable

Disadvantages:-

- Can get corrupted very fast if not handledcarefully.
- Cannot be attached or read on the computer without proper hardwar e unlike pen drive.
- Can be lost or misplaced
- Can be break easily
- Sometimes work slow.