

## **1.4.2 Output Devices**

Following are few of the important output devices which are used in a computer.

- **Monitors**
- **Graphic Plotter**
- **Printer**

## **1.4.3 Monitors**

Monitors, commonly called as Visual Display Unit (VDU), are the main output device of a computer. It forms images from tiny dots, called pixels that are arranged in a rectangular form. The sharpness of the image depends upon the number of pixels.

There are two kinds of viewing screen used for monitors.

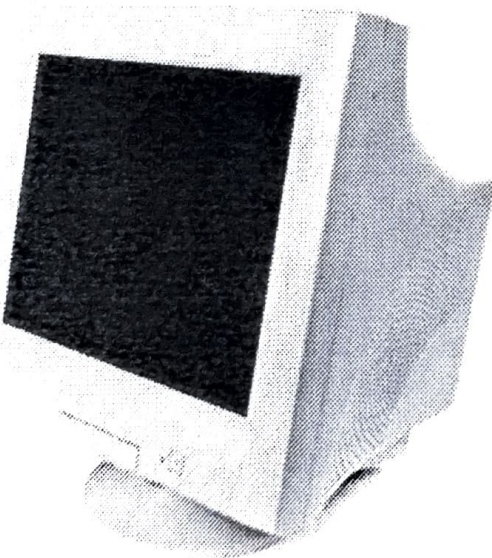
- Cathode-Ray Tube (CRT)
- Flat- Panel Display

### 1)Cathode-Ray Tube (CRT) Monitor

The CRT display is made up of small picture elements called pixels. The smaller the pixels, the better the image clarity, or resolution. It takes more than one illuminated pixel to form whole character, such as the letter 'e' in the word help.

A finite number of characters can be displayed on a screen at once. The screen can be divided into a series of character boxes - fixed location on the screen where a standard character can be placed. Most screens are capable of displaying 80 characters of data horizontally and 25 lines vertically. There are some disadvantages of CRT:

- Large in Size
- High power consumption

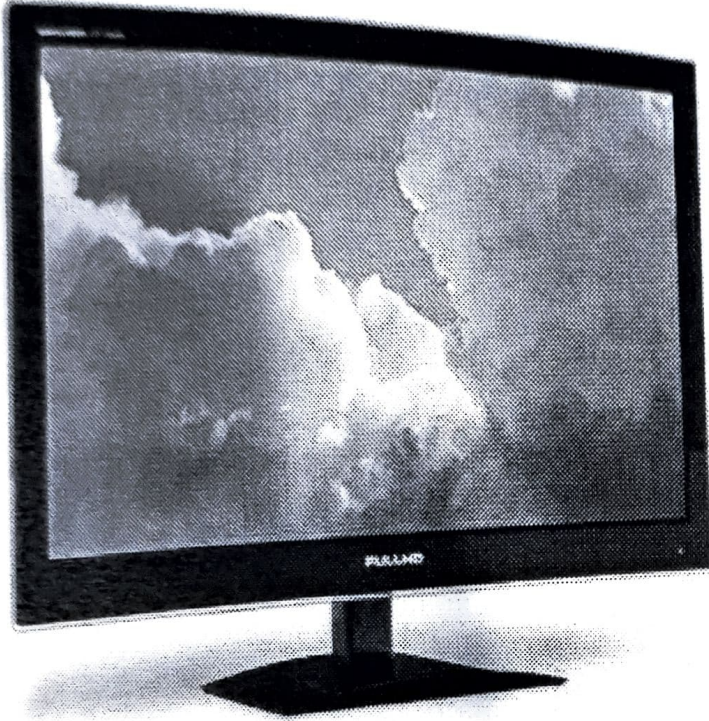


### 2)Flat-Panel Display Monitor

The flat-panel display refers to a class of video devices that have reduced volume, weight and power requirement in comparison to the CRT. You can 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** - The emissive displays are devices that convert electrical energy into light. Example are plasma panel and LED(Light-Emitting Diodes).
- **Non-Emissive Displays** - The Non-emissive displays use optical effects to convert sunlight or light from some other source into graphics patterns. Example is LCD(Liquid-Crystal Device)



#### 1.4.4 Printers

Printer is an output device, which is used to print information on paper.

There are two types of printers:

- Impact Printers
- Non-Impact Printers

##### A) Impact Printers

The impact printers print the characters by striking them on the ribbon which is then pressed on the paper.

Characteristics of Impact Printers are the following:

- Very low consumable costs
- Very noisy
- Useful for bulk printing due to low cost
- There is physical contact with the paper to produce an image

These printers are of two types

- Character printers
- Line printers

## **Character Printers**

Character printers are the printers which print one character at a time.

These are further divided into two types:

- Dot Matrix Printer(DMP)
- Daisy Wheel

### **1)Dot Matrix Printer**

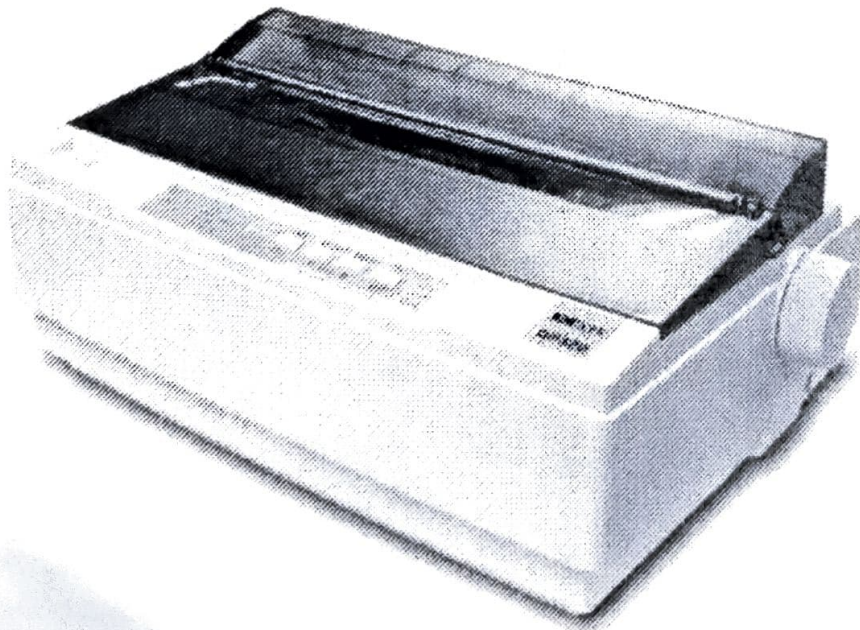
In the market one of the most popular printers is Dot Matrix Printer. These printers are popular because of their ease of printing and economical price. Each character printed is in form of pattern of dots and head consists of a Matrix of Pins of size (5\*7, 7\*9, 9\*7 or 9\*9) which come out to form a character that is why it is called Dot Matrix Printer.

#### **Advantages**

- Inexpensive
- Widely Used
- Other language characters can be printed

#### **Disadvantages**

- Slow Speed
- Poor Quality



## 2) Daisy Wheel

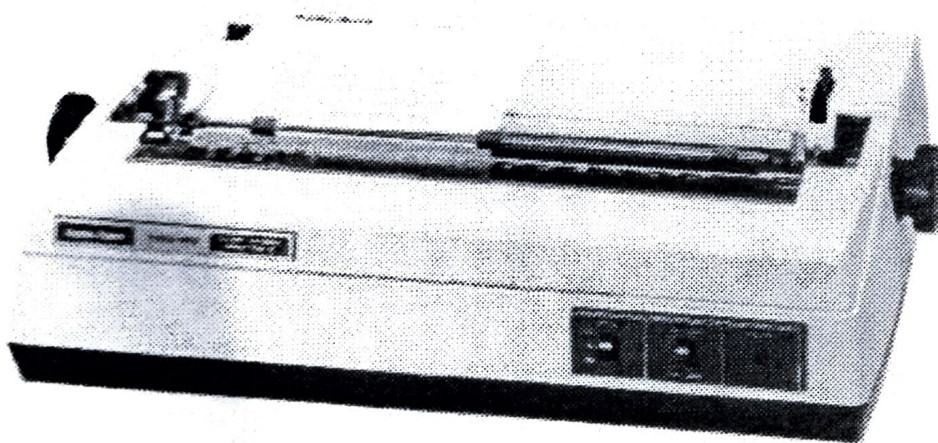
Head is lying on a wheel and pins corresponding to characters are like petals of Daisy (flower name) that is why it is called Daisy Wheel Printer. These printers are generally used for word-processing in offices which require a few letters to be sent here and there with very nice quality.

### Advantages

- More reliable than DMP
- Better quality
- The fonts of character can be easily changed

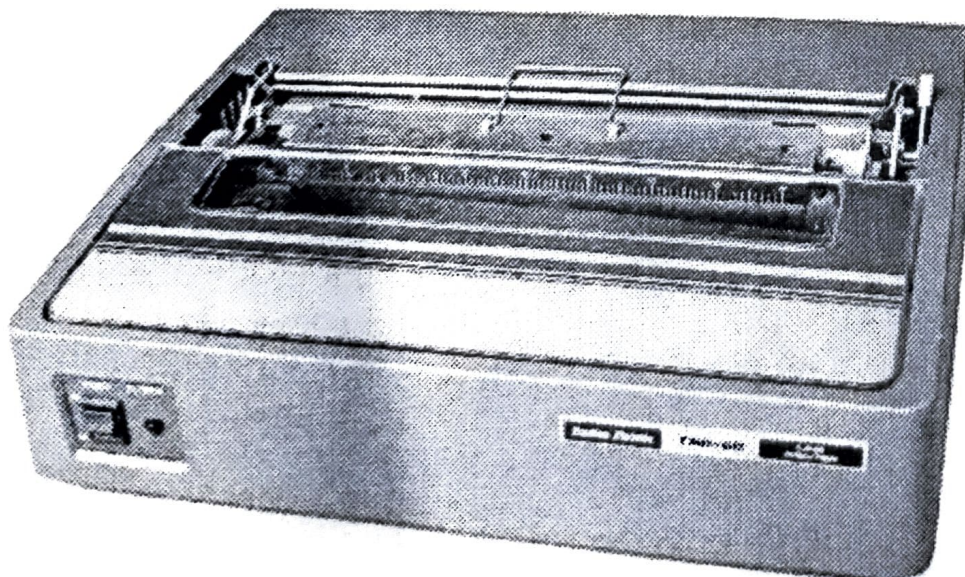
### Disadvantages

- Slower than DMP
- Noisy
- More expensive than DMP



## 3) Line Printers

Line printers are the printers which print one line at a time.



These are of further two types

- Drum Printer
- Chain Printer

#### **4)Drum Printer**

This printer is like a drum in shape so it is called drum printer. The surface of drum is divided into number of tracks. Total tracks are equal to size of paper i.e. for a paper width of 132 characters, drum will have 132 tracks. A character set is embossed on track. The different character sets available in the market are 48 character set, 64 and 96 characters set. One rotation of drum prints one line. Drum printers are fast in speed and can print 300 to 2000 lines per minute.

##### **Advantages**

- Very high speed

##### **Disadvantages**

- Very expensive
- Characters fonts cannot be changed

#### **5)Chain Printer**

In this printer, chain of character sets are used so it is called Chain Printer. A standard character set may have 48, 64, or 96 characters.

##### **Advantages**

- Character fonts can easily be changed.
- Different languages can be used with the same printer.

##### **Disadvantages**

- Noisy