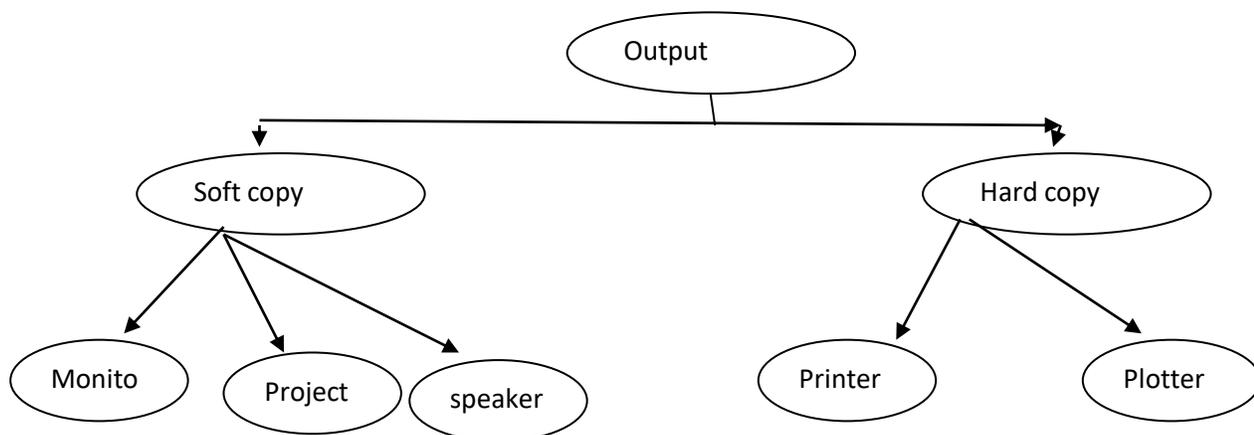


## Output Devices devices

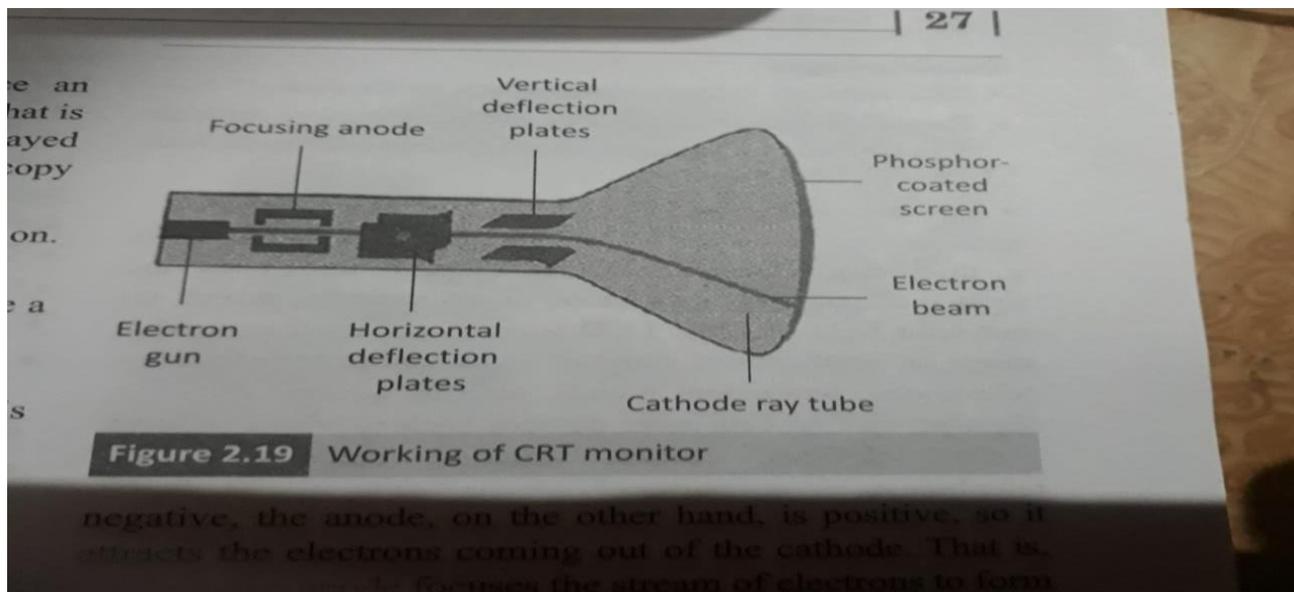
Devices attached in the computer system responsible to provide output to the user is known as output devices. Actually these devices take data from computer memory and present to the user in the prescribed form as their nature . There are so many types of output devices attached in the computer system. Some important categories may be shown as



- a. Collection of output devices as per nature of data to output.
  - i. Soft copy output device : Provide output data for small time Period that can not show further as proof .
    1. Visual Display Unit (VDU) : It Include , cathode ray tube (CRT), Liquid Crystal Device(LCD), Light Emitting Diode(LED)
    2. Sound Amplifier (Speaker)
    3. Projector
  - ii. Hard copy output device : Provide output data printed on paper that can show further as proof.
    1. Printer
    2. Plotter

2. VDU - Visual display Unit(Monitor Screen). It is soft copy output device used to display video and graphics information generated by the computer through video card. It is similar to the television screen. Monitor screen come in three four variety

1. CRT (Cathod ray Tube) :- work by firing charged electron at he phosphorus film. When electrons hits the phosphor- coated screen, they glow, enabling the used to see the output. The CRT construction may be shown as :



Advantage of CRT:- 1. CRT monitor provide images of good quality

1. CRT monitors are cheapest when compared to LCD , Plasma and LED monitor
2. Images are clear when we view from the angle.

Disadvantages :-

1. CRT monitor occupy large space on the desk , bigger in size

2. Power consumption of this monitor is higher than other
3. It generate large amount of heat.

## 2.LCD ( Liquid Crystal Device ) :-

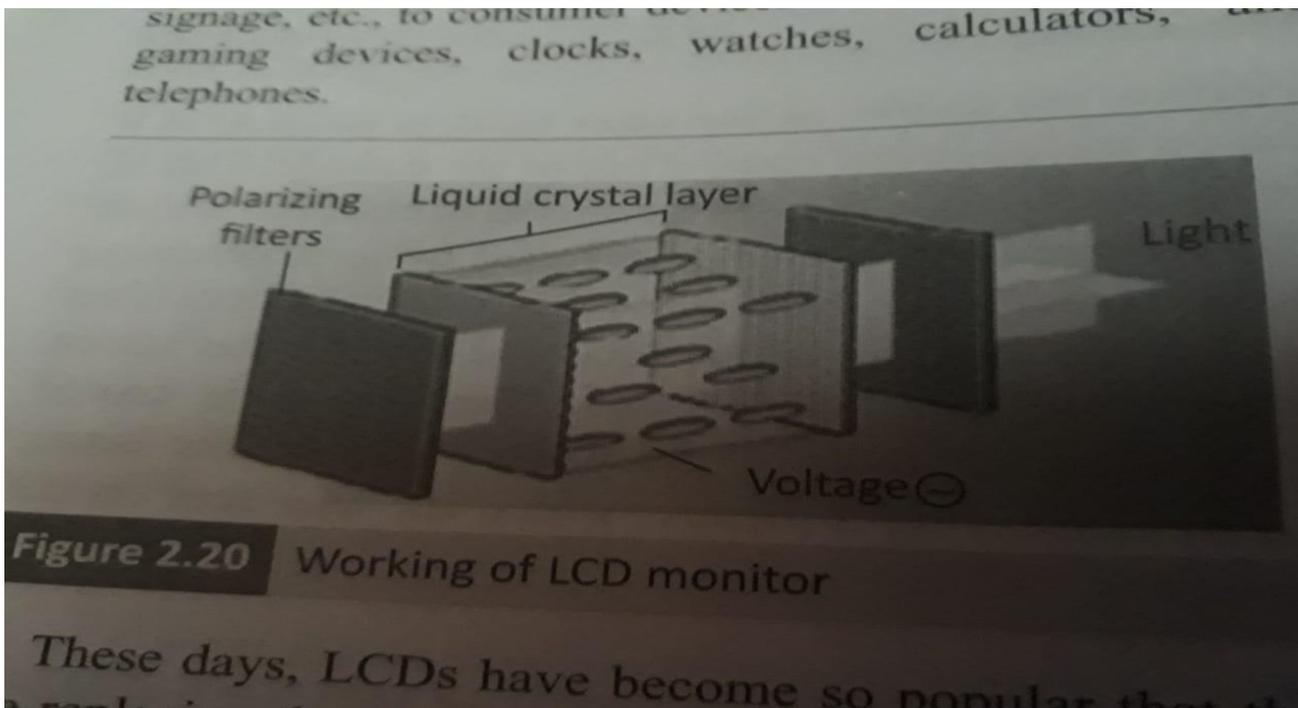
It is flat ,electronic visual display unit that uses high modulating properties of liquid crystals, which do not emits light directly. LCD display is used in wide range of applications ranging from computer monitor, television display, instrument panel, aircraft cockpit display and other home appliances lick clock, watch, calculators or even mobile devices.

LCD technology is based on the principle of blocking light, consist of two pieces of polarizing filters that contain a liquid crystal material. A backlight creates light which pass through the first filters . the electrical current cause liquid crystal to align and pass through the second filter and create color and hence image has shown on the screen.. It is based on active matrix technology where thin film transistors (TFT) arranges tiny transistors and capacitors in a matrix on the glass of display. To refer to a particular row, Power row is turned on and then charge sent to the correct column to display .

### Advantage of LCD :- 1. LCD monitors are very compact and light weight

1. They consumes less power
2. They do not suffer from geometric distortion.
3. This is little or no flicker of images
4. They are more reliable than CRT
5. They cause less eye fatigue (low Radiation)

It may be shown as :-



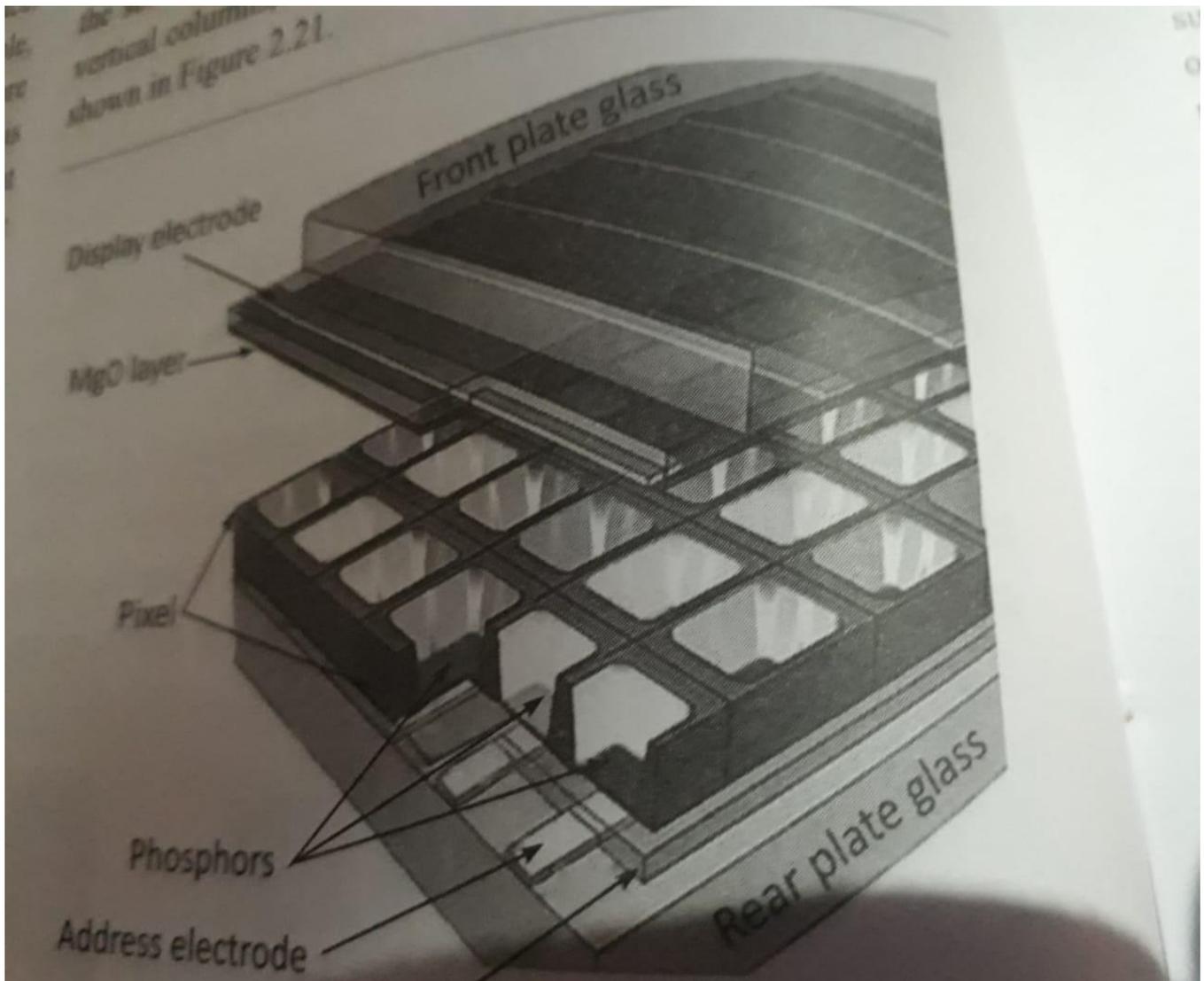
Disadvantage :-

- 1..They are more expensive than CRT.
- 2..Images are not very clear when try to view from angle.
- 3.. Power fluctuation easily harm the monitor.

### **3. Plasma display device :-**

Plasma monitors are thin and flat monitors widely used in television and computer , made up of two glass plates that have hundreds of thousands of tiny cells filled with xenon and neon gas. The displayed electrode are sandwiched between the glass plates and covered with magnesium oxide protective layer and arranged in horizontal rows along the screen while electrodes are arranged in vertical columns.

By passing the electrons in electrodes , it charges and current begins to flow through the gas cell and charged gas cell begins to glow by taking charge .when electrons back to normal level , it release energy in the form of visible light photon. It may be shown as :-



Advantage of plasma display :-

1. This technology allows producing a very wide screen using extremely thin materials
2. Very bright images are formed which look good from almost every angle
3. These monitors are not very heavy and are thus easily portable.

Disadvantages :-

1. These monitors are very expensive
2. This needs high power consumption
3. Such monitors are suffer from flickers.

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