Peripherals & Interfaces Notes for Computer Engineering

Looking for notes of Peripheral & Interfaces, In this post, I have uploaded the notes of Peripherals & Interfaces. Peripheral & Interfaces is a subject for the students of Diploma in Computer Science Engineering 2nd Semester. Share these notes with your classmates 🙂

DISPLAY DEVICES:-

* MONITOR:-

- A Computer Monitor is an output device that display information in pictorial form.

- A Monitor usually comprises the display device, circultry casing and power supply.

- Monitor are connected to the computer via, VGA, Digital Visual interface (DVI), HDMI, Display port Low voltage differential signaling.

- A Monitor is of two types:-
  1. Monochrome display Monitor.
  2. Display Color Monitor.

- A Monochrome display Monitor uses only one to display text and color display can display 256 Colors at one time.

- Monitor are available in various size like 14, 15, 17, 19 and 21 inches.

- An image on the Monitor is created by a configuration of dats also known as Pixel.

- The clarity of image on the computer screen depend on three factors:-

1. **Resolution of Screen :-** The Number of Pixel in horizontal and vertical direction More the Number of pixel, The sharper is the image.
   - The common Resolution of Computer screen is 800×600 and 1024 × 768.

2. **Dot pitch :-** The diagonal distance between two colored pixel on a display screen.

3. **Refresh Rate :-** The Number of time per second the pixel are Recharged so that their glow Remain bright.

* **Segment display :-** Some display can show only digit or alphanumeric character. They are called Segment display.
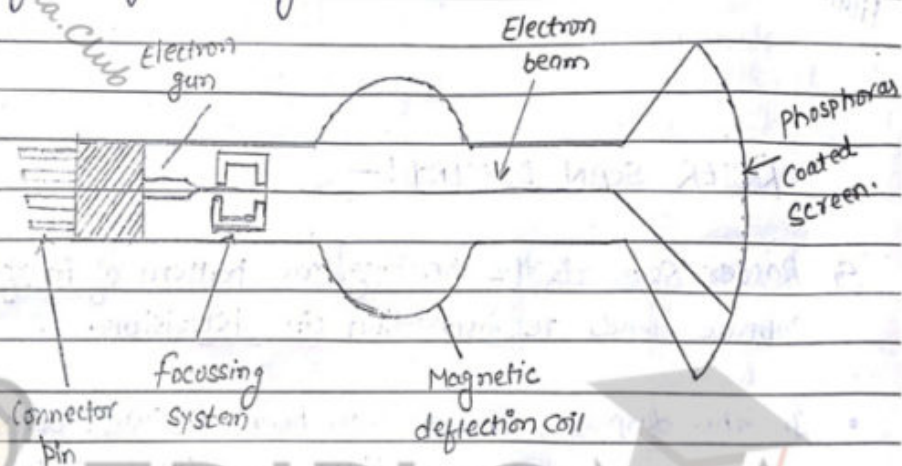
CRT :-

- A CRT is an electronic tube designed to display Electrical data.

- The basic CRT consist of four Major component
  1. Electron gun.
  2. Focussing & accelerating anodes.
  3. Horizontal & vertical deflection plates.
  4. Evaccuated Glass Envelope.

Electron gun :- it is used for producing a strain of Electron.

focussing & accelerating Anodes :- These are used for producing a Narrow and sharply focuss beam of Electron.
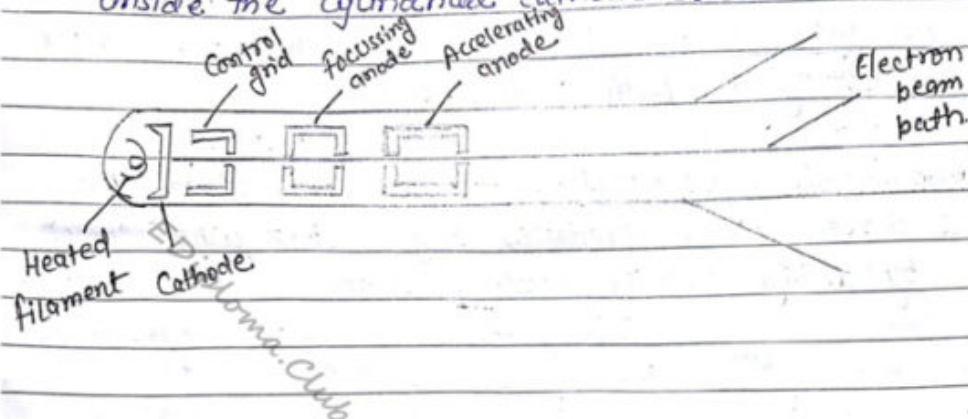
Horizontal and Vertical Deflection :- These are used for controlling the path of the beam.

Evacuated Glass Envelope :- with a Phosphorecent screen which produces bright spot when struck by a high velocity electron beam.

A beam of electrons (cathode rays) emitted by the electron gun passes through the fowsing and the deflection that direct the beam toward a specified position on the phasphor Coated screen. The phasphor then emit a small spot of light at Each position Contracted by the electron beam, because the light emitted by phasphor fades rapidly.
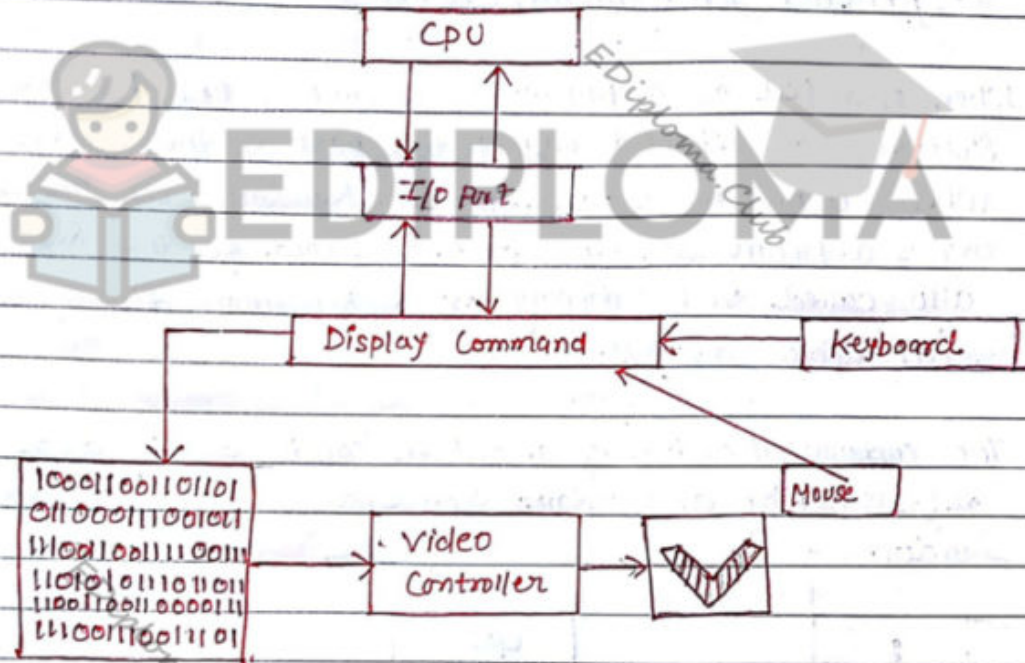
- One way to keep the phasphor glowing is to redraw the picture repeatedly by quickly directing the beam of electron back over the same point. This type of display is called a Refresh CRT.

- Heat is supplied to Cathode by directing a Current through a Coil of wire called the filament inside the cylindrical cathode structure.

Control grid, Focussing anode, Accelerating anode, Electron beam path, Heated filament, Cathode

RASTER SCAN DISPLAY :—

A Raster Scan is the Rectangular pattern of image Capture and reConstruction in television.

- In this display, The electron beam is swept across the Screen one row at a time from top to bottom. As the Electron beam Moves across Each row, the beam intensity is on and off to Each create a pattern of illuminated spots. picture defination is stored in Memory area is Called Refresh Buffer or Frame Buffer.
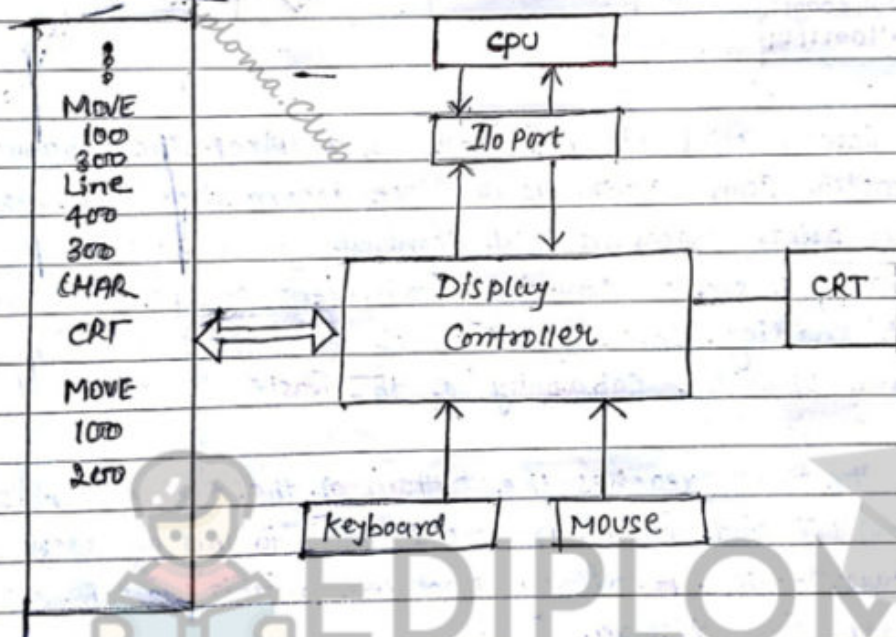
- Each screen point is refferred to as Pixel. The capability of raster scan system is to store information for each screen points Makes it well scanned for all realistic display of scenes containing different colour patterns and shading. Intensity range of for pixel position depend upon the capability of the Raster system.

- When the beam reaches the bottom of the screen, it is Made off and rapidly retraced back to the top left to start again. A display produced in this way is called Raster scan display.

-: RANDAM SCAN DISPLAY [VECTOR DISPLAY] :-

→ When operated as a Random Scan unit a CRT has the Electron beam directed only to the part of the screen where a picture is to be drawn. Random Scan Monitor draws a picture one line at a time and for this Reson also called vector display or storeWritting display or Salligraphic displays.

• The component line of a picture can be drawn and refreshed by a random scan system in any specified order.

→ A pen plotter operates in a similar way in which is an example of Random scan hard copy.

- A display controller is connected as an I/O peripheral to the CPU. The display buffer Memory stores the computer produced display list or display program The program contain point, lines and line plotting program command with end points.

- The display controller interrupt command for plotting, lines and character and sends digital and point co-ordinates to a vector generator. The vector generator then convert the digital co-ordinate value to analog voltage for beam deflection circuit that displace an electron beam writing on the CRTS phasphor coating.

-: Difference b/w Raster and Random display :-

Random (vector) scan display	Raster Scan Display
1. Vector display only draws line and character.	1. Raster display has ability to Display areas filled with solid colour or patterns.
2. Don't use interlacing.	2. Uses interlacing.
3. In vector Scan display, the beam Moved between the end point of the graphic primitives.	3. In Raster Scan display the beam is Moved all over the screen one Scan line at a time from top of bottom and then back to top.

4. Higher Resolution	4. Lower Resolution.
5. More expensive.	5. less expensive
6. Uses Monochrome or beam penetration type.	6. Uses Monochrome or Shadow Mask type.
7. Vector display draws a continuous and smooth lines.	7. Raster display can display Mathematically smooth line curved polygon and boundaries of primitives only by approximating them with pixel on the raster grid.
8. Editing is easy.	8. Editing is difficult.
9. Refresh Rate depend directly on picture complexity	9. Refresh rate independent of picture complexity.

VIDEO ADAPTER :—

• Video Adapter is an integrated circuit card in a computer or in Some cases, a Monitor that provides digital to analog conversion, video RAM and a video Controller. So that data can be Sent to a Computer's display.

1. **MDA :-** Monochrome Display adapter is a Monochrome Card and display on a TTL Monochrome Monitor it is a text only standard. allowing text display at 80×25 character. Each character is Made up of a Matrix that is 9 dots wide by 14 dot. high yelding on effective Resolution of 720×350 at refresh Rate of 50Hz.

2. **CGA :-** Colour Graphic adapter is an early IBM video adapter that replaced Monochrome and was first introduced in 1981. CGA has highest Resolution of 640×200, colour depth of 4bit and Support 16 Colour.

3. **VGA :-** Video graphic array is a Standard VGA System display up to 640×480 pixel on the Screen with up to 16 different Colours at a time. in lower Resolution 320×200 pixel the Screen can show upto 256 Colour at once.

4. **SVGA :-**

* **Resolution :-** Resolution is a Measure used to describe the sharpness and clearity of an image or picture and is often used as a Metric for Judging the quality of Monitor printer, digital image and various other Hardware and software technologies.

—: Basic Concept of PAL and NTSC :—

- PAL (Phase alternating Line) :—

→ PAL is the colour encoding conversion standard that is affect the visual quality of content viewed on analog television and to a much smaller degree content viewed on HDTVS.

→ It was invented by Walter Bruch at telefunken AG in Germany during the 1960s.

→ PAL uses a screen resolution of 720X576 pixels and a Refresh rate of 25 frames per second.

- Resolution :—

Resolution is a Measure used to describe the sharpness and clearity of an image or picture and is often used as a Metric for juding the quality of Monitor Printer, digital image and various other Hardware and software technologies.

PRINTER :-

→ Printer is the Most important output device. Which is used to print information on paper.

-: There are two type of Printers:-
1. Impact printer.
2. Non-impact printer:-

Impact printer :-
The printer that print the character by striking against the ribbon and onto the paper are called impact printer.

-: CHARACTERSTICS OF IMPACT PRINTER:-

- very low consumable costs.
- Impact printer are very Noisy.
- useful for bulk printing due to low cost.
- There is physical contact with the paper to produce an image.

Impact printer are of two types:-
1. Character printer.
2. Line printer.

CHARACTER PRINTER :-
- Character printer are printers which print one character at a time.

These are of further two types :-

1. DOT Matrix printer
2. Daisy Wheel.

DOT MATRIX PRINTER :-

— In Market, one of the Most popular printer is dot Matrix printer because of their case of printing feature and economical price.

— Each character printed is in form of pattern of dat's and head consist of a Matrix of pin of size (5×7, 7×9, 9×7 or 9×9) which comes out to form a character, that is Why it is called dot Matrix printer.

Advantage :-
1. Inexpensive
2. Widely used.
3. Other language character can be printed.

Disadvantage. :-
1. Slow speed.
2. Poor quality.

DAISYWHEEL PRINTER :-

Head is lying on a wheel and pins corresponding to character are liked petals of daisy (flower name) that is Why is called Daisy wheel printer.
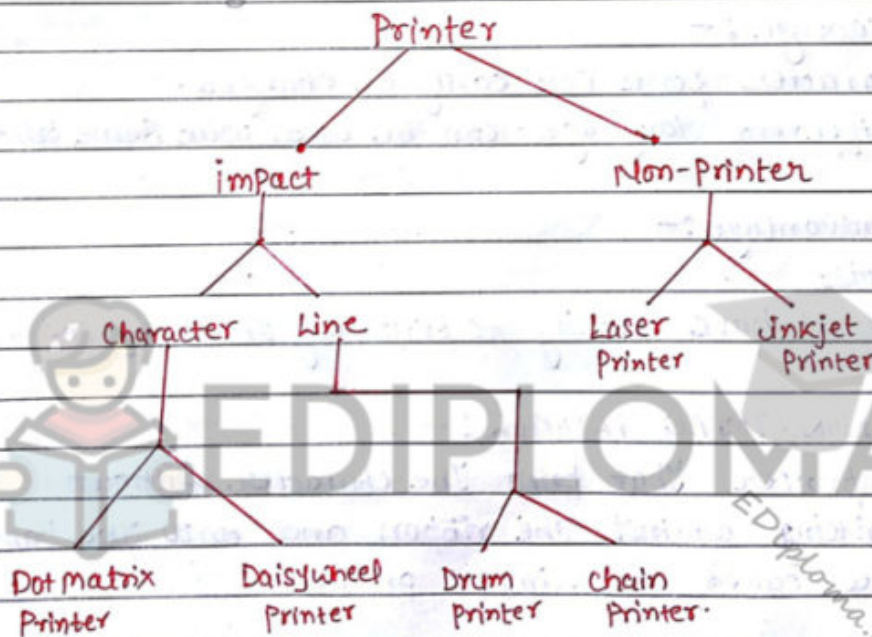
Advantage :—

- More reliable than DMPs.
- Better quality.
- The font's of character can be easily changed.

Disadvantage :—

- Slower than DMPs.
- Noisy
- More expensive than DMPs.

★   **LINE PRINTER :—**

- Line printer are printer, which print one line at a time.
- These are two type:—
  I). Drum printer
  II). chain printer.

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                    Printer
                   /        \
              impact          Non-Printer
             /      \          /        \
      Character    Line    Laser      Inkjet
                           Printer    Printer

   Dot matrix  Daisywheel   Drum      chain
   Printer     Printer      Printer   Printer.
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DRUM PRINTER :-

- This printer is like a drum in shape so it called drum Printer.
- The surface of drum is divided into number of track.
- Total track are equal to size of paper i.e., for a paper width 132 character.
- Drum printer are fast in speed and print between 300 to 2000 lines per minute.

-: CHAIN · PRINTER :-

→ In this printer, chain of character set are used. So it is called chain printer.

→ A standard character set may have 48, 64, 96 Character.

Advantage :-

1. Character fonts can easily be changed.
2. Different language can be used with same printer.

Disadvantage :-

1. Noisy
2. Do not have ability to print any shape of character.

-: NON - IMPACT PRINTER :-

- The printer that print the character without striking against the ribbon and onto the paper are called non-impact printer.

→ These are two types! -

1. Laser
2. Inkjet

LASER PRINTER :-

- These are Non impact printers. They use laser light to produce the dat needed to form the character to be printed on a page.

Advantage :-

- Very high speed.
- Very high quality output.
- Give good graphics quality.
- Support Many fonts and different character size.

Disadvantage :-

- Expensive
- Cannot be used to produce Multiple copies of a document in a single Printing.

INKJET PRINTER :-

- Inkjet printer are nan impact character printer based on a Relatively New technology. They print character by spraying small drop of ink on the paper. inkjet printer produces high quality output with presentable feature.

Advantage :-

1. High quality printing.
2. More reliable.

Disadvantage :-

1. Expensive
2. Cannot be used to produce Multiple copies of a document in a single printing.

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