

Lecture. 8

Input and Output – Display (LCD, OLED), printers

Output device

- It display the results of the processing . It only receive the output from a computer and display it , such as **monitor(LCD, OLED) , printer**

Output device

- I- Monitor :This is the most common output device connected with the computer to display the processed information . It looks like a TV and is also know as VDU(Visual Display Unit) . Pictures are displayed by using a large number of very small dots on screen called pixels that are arranged in matrix form . Each pixel contain a red , green and blue which can be individually adjusted to create any color when combined . The number of pixels that the monitor can show on its screen is referred to as the resolution of the screen . The output produced on the screen is called Soft Copy Output because it can not retained for long time . Soft copy output is output copy of document stored in memory and can be seen on screen , It can modified easily . it is intangible and it is digital version .
- The two commonly types of monitor are :

Output device

- The two commonly types of monitor are :
 - 1- Liquid Crystal Display(LCD)
 - 2- Organic light-emitting devices (OLEDs)

Output device

I- Liquid Crystal Display(LCD)

LCD or Liquid Crystal Display is a flat electronic display which is very commonly used in, laptops, modern desktop , televisions, digital watches and calculators etc.

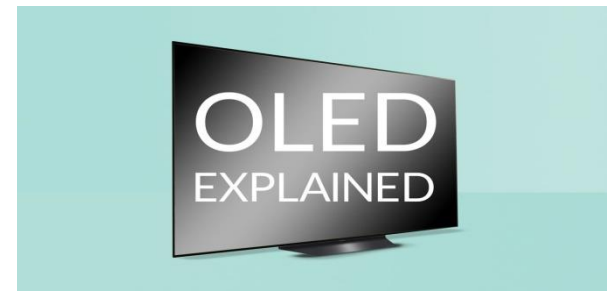


It make use of light modulating properties of liquid crystal and polarization of light for its operation to display image .

- **The advantage** of LCD IS small size (less thickness) , less weight , require less power and high quality .
- **The disadvantage** of LCD

1- The image can be difficult to see in bright light . 2- LCD have a fuzzy viewing angle

Output device



2- Organic light-emitting devices (OLEDs)

- OLED stands for Organic Light Emitting Diode. The organic part here simply refers to carbon-based chemical compounds. These compounds are electroluminescent, which means that they emit light in response to an electric current.
- From this description alone, it's easy to see how OLED differs from LCD and prior display types. Since the compounds used in OLEDs emit their own light, they are an emissive technology. In other words, you don't need a backlight for OLEDs. This is why OLEDs are universally thinner and lighter than LCD panels.

Output device

- Printer

This is an important output device of the computer system . It gives a printed output of the result that appears on the monitor screen on paper. Printed output is also called Hard Copy Output because unlike monitor , this output can be preserved even if the computer is switched off. Hard copy output is printed on paper .It can not be modified easily. It is tangible and is physical version .

There are two types of printers:

- Impact Printers
- Non Impact Printer

Output device

I- Impact Printers

Impact Printers print the characters by striking them on the ink ribbon , which is then pressed on the paper. The characteristics of impact printers are the following :

- Very low consumable cost.
- Very noisy

Output device

These printers are of two types:

- **Character printers**

Character printer is the printer which print one character at a time



- **Line printers**

Line printer is the printer which print one line at the time



Output device

These printers are of two types :

- **Laser Printers**

They are higher speed and high quality device that use laser beam to produce the dots needed to form the characters to be printed on a page



- **Inkjet Printers**

They print characters by spraying small drops of colored ink onto paper. Inkjet printers produce high quality output



Output device

2- Non –impact printer

Non –impact printers print characters without using the ink ribbon .These printers print complete page at the time ,thus they are also called as Page Printers .The characters of Non-impact printers :

- Faster than Impact printers
- They are not noisy
- High quality
- Support many fonts and different character size .