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WORKING of CRT Screen

The phosphor sheet has power of illumination when it sense electron. The duration of illumination is in some micro seconds and can be increased a little by adding substances like silver, gold or bronze. To draw a steady image it is required to continuously redraw the image. There are two ways to redraw the image -

1) Random Scanning - In this type of scanning the electron gun continuously emits electron to draw the required image only. It does not touches the whole screen. However, Random scanning is not feasible on real time systems.

2) Raster Scanning - In this type of scanning algorithm the whole screen is drawn continuously from the left top corner to the bottom right corner. The speed of drawing the image to screen is measured in number of iteration per second called "Refresh Rate". Refresh rate is measured in Hz (Hertz). For eg: if the refresh rate of screen is 60Hz, it means that screen will

be drawn 60 times in one second.

The following are some steps used by CRT screen

1. The data for the image will be send to the CRT through external interface called power pins. Usually, this data will be transferred from CPU.

2. The internal components of the CRT becomes activated as soon as it received the data. At first, the electron gun starts emitting electron with its full capacity through pin point nozzle.

3. The focus ring then collects the electron to convert it to a beam (ray of electron). The focus ring emits collected electron as beams of electron.

4. The beam of electron then passes through magnetic deflection coil. This deflection coil decides the path of beam of electron. As we know that the electron are attracted by magnetic field, the deflection coil plays a

major role to send the beam to each and every location of the screen.

5) As soon as the beam collides at the phosphor sheet, the pixels of the phosphor start illuminating.

6) The electron illuminates the pixels from top left corner to right bottom corner in first iteration and the iteration continues till the screen is ON.

Q Why the screen of CRT screen are oval in shape?

→ So that the electrons will ~~each~~ reach every point on the screen with equal intensity.

Types of CRT Screen

1. Coloured CRT screen
2. Shadow Mask CRT
3. Flood Gun CRT