DVST

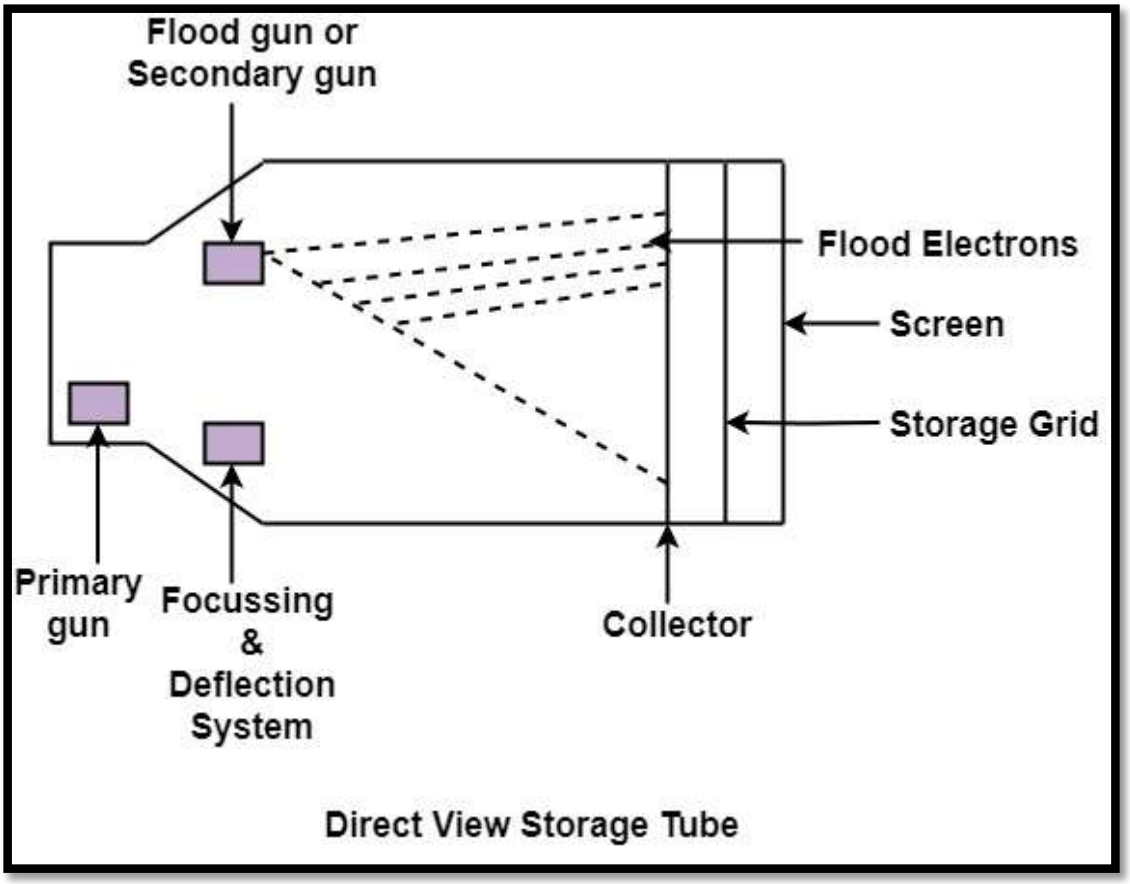
- An alternative method for maintaining a screen image is to store the picture information inside the CRT instead of refreshing the screen.
- Direct View Storage Tube (DVST) behaves like a CRT with highly persistent phosphor.
- Pictures drawn on there will be seen for several minutes (40-50 minutes) before fading.
- It is similar to CRT as far as the electronic gun and phosphor-coated mechanisms are concerned.
- But instead of the electron beam directly writing the pictures on the phosphor coated CRT screen, the writing is done with the help of a fine-mesh wire grid.
- The grid made of very thin, high quality wire, is located with a dielectric and is mounted just before the screen on the path of the electron beam from the gun.
- A pattern of positive charges is deposited on the grid and this pattern is transferred to the phosphor coated CRT by a continuous flood of electrons.
- This flood of electrons is produced by a "flood gun".
- This is separate frame the electron gun that produces the main electron beam.
- Just behind the storage mesh is a second grid called the collector.
- The function of the collector is to smooth out the flow of flood electrons.

Working of DVST

- In DVST similar with CRT electron gun and phosphor coated method is used.
- But in this no electron beam is used to directly writing pictures on screen, but instead of this we can used Storage mesh wire grid is used it is just located behind phosphor coated screen.
- Their is also another grid located just behind storage mesh is called Collector and this purpose is to smooth out flow of flood electrons.
- The flood gun produce large number of electrons, this negatively charged grid reduces speed of these electrons.
- Thus, the electrons attracted by the positive charges pass through the mesh, travel on to the phosphor coated screen and display the picture.
- Since the collector has slowed the electrons down, they may not be able to produce sharp and bright images.
- The dotted circle on the mesh is created by positive charges the flood of electrons hit the mesh at all points.
- But only those electrons that hit the dotted circle pass through and hit the CRT screen.
- The negatively charged mesh repels others.
- Since the phosphor is of a very high persistence quality, the picture created on the CRT screen will be visible for several minutes without the need for being refreshed.
- This is mainly so when only portions of the picture are to be modified in an interactive manner.

- Also, since the electrons hit the CRT screen at very low speeds (though they are slightly accelerated to the CRT by a positively charged aluminum coating), the contrasts are not sharp.
- The pictures stay for almost an hour, there will be a gradual degradation because of the accumulation of the background glow.

Diagram of DVST



Components of DVST

1. Electron guns –

- Two electron guns are used in DVST .
- Primary Gun and Flood Gun.
- Primary gun is used to store picture pattern.
- Flood gun is used to maintain picture display on phosphor coated screen.

2. Phosphor Coated Screen –

- In DVST the inner surface of CRT is coated with phosphor crystals is of high persistence that emit light when beam of electrons strike them.

3. Storage Mesh –

- It is thin and high quality wire that is coated with dielectric and is located just behind phosphor coated screen.
- Primary gun deposits pattern of positive charge on this grid and it is transferred to phosphor coated screen by continuous flood of electrons produced by flood gun.
- Thus Storage Mesh stores picture to be displayed in form of positive charge distribution.

4.Collector –

This grid is located just behind storage mesh and purpose of this negatively charged grid is to smooth out flow of flood electrons.

Advantages of DVST

1. Less time consuming.
2. No refreshing is required because we do not work pixel by pixel.
3. Complex pictures can be shown at very high resolution.
4. No use of frame buffer or refresh buffer.

Disadvantages of DVST

1. Selected part of picture cannot be erased.
2. To modify a picture the whole picture has to be redrawn which takes lot of time in case of complex pictures.
3. Not used for dynamic graphic such as animation.
4. These systems do not display colors.