

TYPES OF CAMERAS IN CCTV

1. FIXED AND PTZ CAMERAS:

CCTV cameras can be fixed, have pan, tilt and can have zoom capabilities. Fixed cameras are mounted on fixed brackets and cannot move. PTZ cameras are motor driven and can move left, right, up and down and can also zoom in and out.

2. DOME CAMERAS:

Many PTZ cameras now days come in dark colored domes. They offer 3 main advantages: Deterrence- Domes make it virtually impossible to detect where the camera is pointing. Aesthetics- Dome covers all the internal equipment in a clean shell. Smoked Plexiglas bubbles- have the same effect as wearing sunglasses. As it reduces the amount of light reaching the lens that can affect the colour accuracy picked by the camera.

3. CAMERA SENSORS:

Two types of camera sensors exist. The Complementary Metal-Oxide Semiconductor (CMOS) sensor produces low to medium quality images at a low cost. The Charged Coupled Device (CCD) sensor produces the higher quality footage compared with CMOS sensors. However, CCD sensors are more expensive. Most CCTV providers recommend image sensors between 1/3" and 1/4". The larger the sensor, the better is the image

quality.

4. LENS:

The primary function of it is to collect light from scene and focus a clear, sharp image on camera's imager. Typically more the light passes through the lens; the better is the quality of the picture. The camera lens can be typically divided into two parts: Fixed focal whose focal length remains constant and varifocal whose focal length can be changed.

5. LENS MOUNTS:

Camera lenses generally come with either a C-mount or CS-mount and they must match approximately to the camera's mounting requirements. The difference between the two is the distance of the lens option from the camera's imager.

6. VIDEO TRANSMISSION METHODS:

The main purpose of the transmission medium is to carry the video signal from the camera to the monitor. There are many video transmission methods like: fiber optic, coaxial cable, microwave, phone lines, and radio frequency. The choice of transmission mediums mainly depends on factors such as distance, environments, cost and facility layout.

1. Coaxial Cable: A coaxial cable is one that provides a continuous physical connection -

or closed circuit between the camera and the monitor. The cable is shielded to minimize interference from any nearby electronic devices or electrical wires. For traditional CCTV systems, as well as many applications today, this is the most common economical method of signal transmission over relatively short distances.

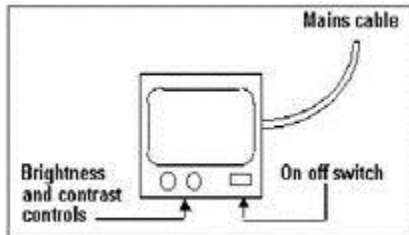
2. Fiber Optics: Fiber optic technology changes an electronic video signal into pulsed or laser light and transmits it into one end of a glass rod (the fiber optic cable). At the other end, a receiver translates the pulsed light back into an electronic signal capable of being displayed on a monitor. Fiber optics offers a cost-effective method of sending large transmissions over long distances.

3. Microwave: If already in place, microwave can be a very efficient and cost-effective method of delivering black and white or colour video. Microwave turns the video and data signals into high radio frequency signals and transmits them from one point to another via free air and space. A receiver then converts the transmission back into the video and data signals and displays the scene on a monitor.

7. MONITOR:

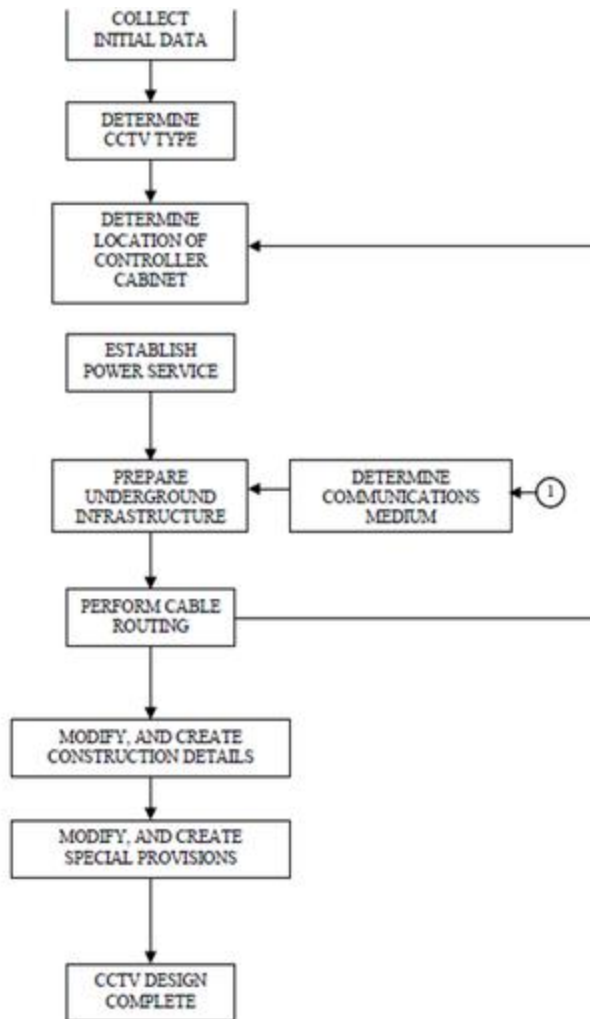
The image created by the camera needs to be reproduced at the control position. The monitor receives the transmitted electronic video signal from the camera via CRT (Cathode Ray Tube) to display an image to the viewer. Although it is similar in function to TV, it provides higher lines of resolution and accepts only video signals rather than RF/antenna signals. Most CCTV system uses both dedicated monitors and call up (switchable) monitors. A dedicated monitor displays the video from only one camera

while call up monitors enables the monitor to switch multiple cameras into view. Generally call up monitor is larger than dedicated monitors and gives operator the ability to view multiple images at the same time.



CCTV DESIGN PROCESS/ WORKING

In the CCTV design process, several steps must be followed to ensure successful implementation and for proper operational capabilities. Many of these steps, such as power and communication requirements, must be addressed early in the design process.



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