

Title:

How Digital Cameras Work

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Summary:

A digital camera focuses light through a lens onto a sensor, that records images electronically. This electronic information is then converted into binary digital data, and stored on a fixed or a removable device for being read by a computer. Below is a more outlined way of understanding how digital cameras work.

1. The CCD

In practice, most digital cameras use a charge coupled device (CCD) as an image sensor. Some digital cameras use a complimentary metal oxide semicon...

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1. The CCD

In practice, most digital cameras use a charge coupled device (CCD) as an image sensor. Some digital cameras use a complimentary metal oxide semiconductor (CMOS) instead. Both these sensors convert light into electrical charges, that are transferred to a storage disc. The sensors also filter the light into the three primary colors and then combine them to create the full spectrum. The more expensive cameras use three sensors. Each of them has a filter of a different color.

2. Light Control

Aperture and shutter speed is used to control the amount of light that reaches

the sensor. The aperture setting is automatic in most digital cameras. Some cameras also allow manual control, for professionals and enthusiasts. The shutter, in contrast, is set electronically.

### 3. Lenses

The digital cameras use four kinds of lenses. These are: fixed-focus, fixed-zoom lenses; optical-zoom lenses with automatic focus; digital-zoom lenses, and replaceable lens systems. The fixed focus and fixed zoom lenses are used in inexpensive cameras while the optical zoom lenses have both wide and telephoto options. The digital zoom lens culls pixels from the central part of the image and enlarges them to fill the frame. Of course, this can at times result in a grainy or fuzzy image.

### 4. LCD Screen

This is the screen where you view the image. For better viewing or printing, the image needs to be transferred to a computer. The quality of the image depends on the resolution of a digital camera, and is measured in megapixels. The higher the resolution, the better is the image quality.

### 5. Resolution

The resolution is also important in deciding the size of printed photographs. A 1 megapixel digital camera will produce images that are good for e-mailing or posting on the Web. This is because their resolution is low. The images taken from a 2 megapixel camera are suitable for 4x5 inch prints while those taken from a 4 megapixel camera can produce 16x20 inch prints.

### 6. Memory

Most digital cameras store images within the camera on memory cards. These were then transferred with the help of cables to computers. Today, most digital camera makers provide reusable and removable storage devices. These include SmartMedia cards, CompactFlash cards and Memory Sticks. Some other removable storage devices include: floppy disks, hard disks, or microdrives, writeable CDs and DVDs. The vast volume of memory has increased as the technology increased, and exciting prospect.