A digital camera (or digicam) is a camera that encodes digital images and videos digitally and stores them for later reproduction. Most cameras sold today are digital, and digital cameras are incorporated into many devices ranging from PDAs and mobile phones (called camera phones) to vehicles.

Digital and film cameras share an optical system, typically using a lens with a variable diaphragm to focus light onto an image pickup device. The diaphragm and shutter admit the correct amount of light to the imager, just as with film but the image pickup device is electronic rather than chemical. However, unlike film cameras, digital cameras can display images on a screen immediately after being recorded, and store and delete images from memory. Many digital cameras can also record moving videos with sound. Some digital cameras can crop and stitch pictures and perform other elementary image editing.

Steven Sasson as an engineer at Eastman Kodak invented and built the first electronic camera using a charge-coupled device image sensor in 1975. Earlier ones used a camera tube; later ones digitized the signal. Early uses were mainly military and scientific; followed by medical and news applications. In the mid to late 1990s digital cameras became common among consumers. By the mid-2000s digital cameras had largely replaced film cameras, and higher-end cell phones had an integrated digital camera. By the beginning of the 2010s almost all smartphones had an integrated digital camera

The two major types of digital image sensor are CCD and CMOS. A CCD sensor has one amplifier for all the pixels, while each pixel in a CMOS active-pixel sensor has its own amplifier. Compared to CCDs, CMOS sensors use less power. Cameras with a small sensor use a back-side-illuminated CMOS (BSI-CMOS) sensor. Overall final image quality is more dependent on the image processing capability of the camera, than on sensor type.

Types of digital cameras

Digital cameras come in a wide range of sizes, prices and capabilities. In addition to general purpose digital cameras, specialized cameras including multispectral imaging equipment and astrographs are used for scientific, military, medical and other special purposes.

Compact cameras are intended to be portable and are particularly suitable for casual "snapshot".

Many incorporate a retractable lens assembly that provides optical zoom. In most models, an auto actuating lens cover protects the lens from elements. Most ruggedized or water-resistant models do not retract, and most with (superzoom) capability do not retract fully.

Compact cameras are usually designed to be easy to use. Almost all include an automatic mode, or "auto mode", which automatically makes all camera settings for the user. Some also have manual controls. Compact digital cameras typically contain a small sensor which trades-off picture quality for compactness and simplicity; images can usually only be stored using lossy

compression (JPEG). Most have a built-in flash usually of low power, sufficient for nearby subjects. A few high end compact digital cameras have a hotshoe for connecting to an external flash. Live preview is almost always used to frame the photo on an integrated LCD display. In addition to being able to take still photographs almost all compact cameras have the ability to record video.

Compacts often have macro capability and zoom lenses, but the zoom range (up to 30x) is generally enough for candid photography but less than is available on bridge cameras (more than 60x), or the interchangeable lenses of DSLR cameras available at a much higher cost. Autofocus systems in compact digital cameras generally are based on a contrast-detection methodology using the image data from the live preview feed of the main imager. Some compact digital cameras use a hybrid autofocus system similar to what is commonly available on DSLRs. Some high end travel compact cameras have 30x optical zoom have full manual control with lens ring, electronic viewfinder, Hybrid Optical Image Stabilization, built-in flash, Full HD 60p, RAW, burst shooting up to 10fps, built-in Wi-Fi with NFC and GPS altogether.

Typically, compact digital cameras incorporate a nearly silent leaf shutter into the lens but play a simulated camera sound for skeuomorphic purposes.

For low cost and small size, these cameras typically use image sensor formats with a diagonal between 6 and 11 mm, corresponding to a crop factor between 7 and 4. This gives them weaker low-light performance, greater depth of field, generally closer focusing ability, and smaller components than cameras using larger sensors. Some cameras use a larger sensor including, at the high end, a pricey full-frame sensor compact camera, such as Sony Cyber-shot DSC-RX1, but have capability near that of a DSLR.

A variety of additional features are available depending on the model of the camera. Such features include ones such as GPS, compass, barometer and altimeter for above mean sea level or under(water) mean sea level.[13] and some are rugged and waterproof.

Starting in 2011, some compact digital cameras can take 3D still photos. These 3D compact stereo cameras can capture 3D panoramic photos with dual lens or even single lens for play back on a 3D TV.

In 2013, Sony released two add-on camera models without display, to be used with a smartphone or tablet, controlled by a mobile application via WiFi.