The difference between CCD and CMOS

CCD(charge-coupled device) and CMOS (complementary metal-oxide semiconductor) are the image sensors that are used in digital camera. So what the difference between CCD and CMOS, now let's have a basic learning about the two types of image sensor.

The CCD contains an array of capacitors that gathers a charge that is proportional to the amount of light that is hitting it. The amount of charge in each capacitor is then converted into a numerical value by the cameras internal program to produce an image.
CMOS is a name given to a group of integrated circuits that share a certain design. The CMOS image sensor is just one type of CMOS IC that has been built specifically for capturing images.

There have been some noticeable differences between CCD and CMOS sensors.
1. CCD sensors, create high-quality, low-noise images. CMOS sensors, traditionally, are more susceptible to noise.
2. Because each pixel on a CMOS sensor has several transistors located next to it, the light sensitivity of a CMOS chip tends to be lower. Many of the photons hitting the chip hit the transistors instead of the photodiode.
3. CMOS traditionally consumes little power. Implementing a sensor in CMOS yields a low-power sensor.CCD use a process that consumes lots of power. CCD consume as much as 100 times more power than an equivalent CMOS sensor.
4. CMOS chips can be fabricated on just about any standard silicon production line, so they tend to be extremely inexpensive compared to CCD sensors.
5. CCD sensors have been mass produced for a longer period of time, so they are more mature. They tend to have higher quality and more pixels.

Each of these sensors has their own advantages and disadvantages that make them a perfect fit for a specific niche. CCD are excellent for capturing high quality pictures that makes it perfect for professional photographers and hobbyists. CMOS cameras are cheaper and consume less power making it a good fit for multipurpose portable devices like mobile phones, laptops, and gaming devices where image quality is not really a top priority.