A CMOS sensor is a digital device. CMOS stands for ‘complementary metal-oxide semiconductor.’ A CMOS sensor converts the charge from a photosensitive pixel to a voltage at the pixel site. The signal is then multiplexed by row and column to multiple on-chip, digital-to-analog converters. CMOS sensors have high speed, low sensitivity, and high, fixed-pattern noise.

A CCD sensor is a “charged coupled device.” Just like a CMOS sensor, it converts light into electrons. Unlike a CMOS sensor, it is an analog device. It is a silicon chip that contains an array of photosensitive sites. Being an analog device, output is immediately converted to a digital signal by an analog-to-digital converter. The voltage is read from each site to reconstruct an image.

For a long time, the CCD sensor was the prevalent technology for capturing high-quality, low-noise images. But CCD sensors are expensive to manufacture, so they often come with a higher price tag. They also consume more power than CMOS sensors, sometimes a hundred times more. Luckily, CMOS sensor technology has advanced to the point where it is fast approaching the quality and capabilities of CCD technology, and with a significantly lower price tag, smaller size, and power consumption.