

CCD Camera Sensor

- Have passive filters that transfer the charge to a single amplifier.
- Charge coupled device.
- Each charge in each pixel is transferred using horizontal and vertical shift registers, then converted to voltage and amplified.
- Not possible to integrate peripherals like timers and ADC, in the main sensor, required additional chip and thus large size.
- Requires different power supplies, typically 7-10 V, thus consuming more power.
- Low processing speed as each pixel is processed one-by-one.
- Large fill factor, noise and sensitivity.
- Better ^{image} camera quality.
- Use global shutter.
- Suffer from smear.
- Image distortion due to blooming.

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CMOS Camera Sensor

- Have active pixels that amplify the charge in each pixel.
- Complementary Metal oxide semiconductor.
- Charge to voltage conversion and amplification are carried out in the pixels itself.
- Fabrication procedure is very similar to that of IC, it is possible to integrate peripheral components into single chip, thus, possible to have camera on chip or SoC.
- Requires single power supply, typically 3.3-5 V, thus consuming less power.
- High speed as processing is carried out in the pixel itself.
- Low fill factor, noise and sensitivity.
- Cheaper, energy efficient.
- Use rolling shutter.
- Affected by skew, wobble & partial exposure.