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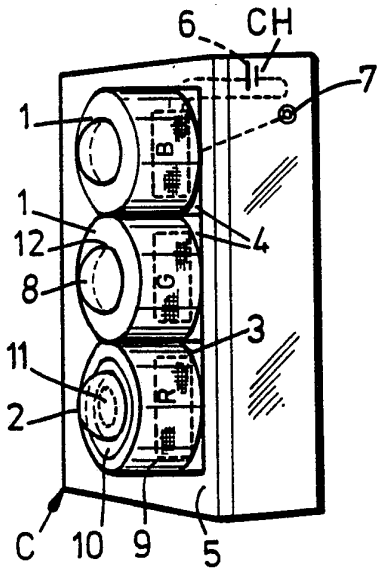

(57) Abstract

The present invention relates to an image capture system suitable for use in an electronic camera system *C* and comprising a solid state image capture device (1) comprising an integrated circuit (5) having at least two sensor arrays (4), each said array

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SOLID STATE SENSOR ARRANGEMENT FOR VIDEO CAMERA

The present invention relates to electronic cameras including electronic colour cameras.

It is well known that colour sensors can be produced by discriminating three images of the primary colours (blue, green, red) of the scene. All colours can be analysed and synthesised via these primaries (or other complementary triples like cyan, magenta, yellow). Conventional electronic cameras classically use one of two approaches for forming the separate colour images. 3-tube cameras use a single lens followed by a prism which forms three separate r.g.b images. Three sensors are used simultaneously to detect these three images. If the sensors are accurately aligned the resulting picture is of very high quality. However the sensors are separated in space and orientation and their assembly and alignment with the prism and lens is difficult for a volume manufacturing process. This technique is therefore used exclusively for expensive broadcast-quality equipment. Colour-Mosaic Cameras use a single lens and sensor, but the sensor surface is covered with a high-resolution mosaic or grid of colour filters, with the pattern dimension equal to the pixel-pitch for a semiconductor CCD or MOS sensor array. Pixels of different colours are demultiplexed at the sensor output and interpolated to form synchronous parallel colour signals. This is well-suited to volume production as the surface colour mosaic can be fabricated as an extension of the semiconductor wafer fabrication process. The techniques for mosaic fabrication are restricted to relatively few companies worldwide who supply the colour sensor market and thus they are not commonly available. Furthermore, associated with this technique there are technical problems concerned with resolution and aliasing. Much

work has been done to correct these effects, but usually at some cost in image-processing hardware.

It is an object of the present invention to avoid or minimise one or more of the above disadvantages.

In one of its broadest aspects, the present invention provides an image capture system comprising a solid state image capture device which device comprises an integrated circuit having at least two sensor arrays, each said array having an image sensing surface and a respective lens system associated therewith.

Thus in effect the present invention provides two or more cameras on one chip each with its own lens system and sensor array. With such an arrangement the problem of alignment is greatly reduced by the fabrication of the various sensors required one one chip. This ensures that the sensors all lie in the same plane and have the same rotational orientation, and this is an important advantage. Assuming lenses can be accurately assembled in a parallel plane (see below), the only alignment errors which are likely to occur are simple orthogonal translations in the form of vertical and horizontal errors in the centres of the optical axes. It is relatively easy though to calibrate these cameras after assembly and electronically to correct for these translations. Whilst the inevitable lateral off-set between the cameras at even the closest dispositions of the cameras on the chip, will of course give rise to a degree of parallax error, it has now been found that with a preferred system of the present invention with generally adjacent sensor arrays, the degree of error in producing a single composite image (i.e. a single image produced by the more or less accurately aligned super imposition of two or more corresponding images e.g. at

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