camera 1. The camera control section 21 lowers the gain of the camera 1 according to the instruction from the pixel value comparison section 31 (step S16).

The above processes of steps S13 to S16 are repeated until the maximum value of the pixel value in the image becomes smaller than the upper limit pixel value.

[0034] Here, for example, when the sun appears in the luminance distribution measurement target area, the maximum pixel value does not become smaller than the upper limit pixel value even if the gain of the camera 1 is the minimum value that can be set. Therefore, in such a case, the pixel value comparison section 31 specifies as the area outside the luminance measurement range, an area in the image whose maximum pixel value is equal to or larger than the upper limit pixel value even if the gain is the minimum value (YES in step S15). Then, the pixel value comparison section 31 stores information indicating the area outside the luminance measurement range in the upper limit/lower limit pixel value storage section 32 (step S17).

[0035] Further, when step S14 is YES, or after step S17 is performed, the pixel value acquisition section 12 stores in the pixel value storage section 13, the pixel value of each pixel position in the image together with information on the exposure time (step S21).

[0036] Further, the pixel value acquisition section 12 stores the minimum pixel value in photographing with a shortest exposure time that can be set, as the lower limit pixel value in the upper limit/lower limit pixel value storage section 32 (step S22).

[0037] From the above, the gain value adjustment process of the camera 1 is completed.

[0038] Next, the camera photographing process will be described with reference to Fig. 3.

[0039] First, the camera control section 21 sets the exposure time of the camera to a

maximum exposure time is reached. Among the five images, it is assumed that the pixel values in the area of 20 pixels X 20 pixels from an upper left are equal to or smaller than the lower limit pixel value in three images, and the pixel values in the same area are larger than the lower limit pixel value in two images. In this case, the number of images in which the pixel values larger than the lower limit pixel value are obtained in the area of 20 pixels X 20 pixels from the upper left is two, which does not reach the required number of images. Therefore, the pixel value comparison section 31 specifies the area of 20 pixels X 20 pixels from the upper left as the area outside the luminance measurement range.

[0046] By the above processes, the camera photographing process is completed.

Note that, in the present embodiment, it is assumed that N ($N \geq 3$) images are stored in the pixel value storage section 13 by the processes in Fig. 3.

[0047] Next, the luminance value calculation process and the luminance distribution generation process will be described with reference to Fig. 4.

[0048] First, the pixel value selection section 41 acquires for each pixel position, pixel values of the same pixel position from the N images stored in the pixel value storage section 13 (step S41). Note that, the pixel value selection section 41 does not acquire the pixel values of the pixel positions in the area outside the luminance measurement range stored in the upper limit/lower limit pixel value storage section 32.

Further, in step S41, the pixel value selection section 41 also acquires information on the exposure time at a time of photographing of each of the N images from the pixel value storage section 13.

[0049] Next, the pixel value selection section 41 selects a pixel value satisfying a condition that the pixel value is larger than the lower limit pixel value and smaller than the upper limit image value, among the pixel values acquired in step S41 (step S42).