

WHAT IS CLAIMED IS:

1. A multispectral image capturing apparatus having different spectral sensitivity characteristics of at least four bands, comprising:

5 spectral sensitivity characteristics of three primary bands of the at least four bands having spectral sensitivity characteristics of standard RGB; and

10 spectral sensitivity characteristic of at least one auxiliary band of the rest of the at least four bands excluding the three primary bands having a spectral sensitivity characteristic of a narrower bandwidth than bandwidths of the RGB.

15 2. The multispectral image capturing apparatus according to claim 1, wherein

20 a sensitivity value of a main wavelength in the spectral sensitivity characteristic of the auxiliary band is smaller than a half of a sensitivity value of a main wavelength in each of the spectral sensitivity characteristics of the three primary bands.

3. A multispectral image capturing apparatus, comprising:

 a half mirror configured to divide light from an image capturing lens into two light paths;

25 a band-pass filter configured to modulate a spectral characteristic of one portion of the light divided by the half mirror;

an image capturing unit configured to receive the light modulated by the band-pass filter and capture an image of a subject; and

5 a color image capturing unit configured to receive the other portion of the light divided by the half mirror as three decomposed colors of red, blue, and green and capture a color image of the subject.

4. The multispectral image capturing apparatus according to claim 3, wherein

10 the half mirror is configured to divide the light from the image capturing lens into the two light paths at an unequal intensity ratio of equal to or greater than two to one.

5. The multispectral image capturing apparatus according to claim 4, wherein

15 the band-pass filter has a comb-like spectral shape including a plurality of transmissive wavelength bandwidths and a plurality of non-transmissive wavelength bandwidths within a wavelength range of a visible region, and

20 the image capturing unit configured to receive the light transmitted through the band-pass filter includes a color image capturing unit configured to decompose and receive light of the plurality of transmissive wavelength bandwidths transmitted through the band-pass filter.

6. The multispectral image capturing apparatus

according to claim 5, wherein

the image capturing unit configured to receive the light divided by the half mirror and transmitted through the band-pass filter includes an image capturing device configured to capture an image,

the color image capturing unit configured to receive the light divided by the half mirror as the three decomposed colors of red, blue, and green includes an image capturing device configured to capture an image, and

a total number of pixels of the image capturing device included in the image capturing unit is smaller than a total number of pixels of the image capturing device included in the color image capturing unit.

7. The multispectral image capturing apparatus according to claim 4, wherein

the image capturing unit configured to receive the light divided by the half mirror and transmitted through the band-pass filter includes an image capturing device configured to capture an image,

the color image capturing unit configured to receive the light divided by the half mirror as the three decomposed colors of red, blue, and green includes an image capturing device configured to capture an image, and

a total number of pixels of the image capturing device included in the image capturing unit is smaller

than a total number of pixels of the image capturing device included in the color image capturing unit.

8. The multispectral image capturing apparatus according to claim 3, wherein

5 the band-pass filter has a comb-like spectral shape including a plurality of transmissive wavelength bandwidths and a plurality of non-transmissive wavelength bandwidths within a wavelength range of a visible region, and

10 the image capturing unit configured to receive the light transmitted through the band-pass filter includes a color image capturing unit configured to decompose and receive light of the plurality of transmissive wavelength bandwidths transmitted through the band-pass
15 filter.

9. The multispectral image capturing apparatus according to claim 8, wherein

 the image capturing unit configured to receive the light divided by the half mirror and transmitted
20 through the band-pass filter includes an image capturing device configured to capture an image,

 the color image capturing unit configured to receive the light divided by the half mirror as the three decomposed colors of red, blue, and green
25 includes an image capturing device configured to capture an image, and

 a total number of pixels of the image capturing

device included in the image capturing unit is smaller than a total number of pixels of the image capturing device included in the color image capturing unit.

10. The multispectral image capturing apparatus
5 according to claim 3, wherein

the image capturing unit configured to receive the light divided by the half mirror and transmitted through the band-pass filter includes an image capturing device configured to capture an image,

10 the color image capturing unit configured to receive the light divided by the half mirror as the three decomposed colors of red, blue, and green includes an image capturing device configured to capture an image, and

15 a total number of pixels of the image capturing device included in the image capturing unit is smaller than a total number of pixels of the image capturing device included in the color image capturing unit.

11. A multispectral image capturing apparatus
20 having different spectral sensitivity characteristics of at least four bands, comprising:

a dichroic mirror configured to have a comb-shaped spectral transmittance characteristic and a comb-shaped spectral reflectance characteristic, transmit light of
25 a plurality of wavelength bandwidths, and reflect light of bandwidths other than the plurality of wavelength bandwidths;

a band-pass filter configured to have a transmissive wavelength bandwidth substantially similar to a transmissive wavelength bandwidth of the dichroic mirror; and

- 5 a band-pass filter configured to have a spectral transmittance characteristic of transmitting light of a wavelength bandwidth substantially equal to a reflective wavelength bandwidth of the dichroic mirror.

10 12. A multispectral image capturing apparatus, comprising:

half mirror means for dividing light from an image capturing lens means into two light paths;

15 band-pass filtering means for modulating a spectral characteristic of one portion of the light divided by the half mirror means;

image capturing means for receiving the light modulated by the band-pass filtering means and capturing an image of a subject; and

20 color image capturing means for receiving the other portion of the light divided by the half mirror means as three decomposed colors of red, blue, and green and capturing a color image of the subject.

25 13. A multispectral image capturing apparatus having different spectral sensitivity characteristics of at least four bands, comprising:

dichroic mirror means, having a comb-shaped spectral transmittance characteristic and a comb-shaped

spectral reflectance characteristic, for transmitting light of a plurality of wavelength bandwidths and reflecting light of bandwidths other than the plurality of wavelength bandwidths;

5 band-pass filtering means having a transmissive wavelength bandwidth substantially similar to a transmissive wavelength bandwidth of the dichroic mirror means; and

10 band-pass filtering means having a spectral transmittance characteristic of transmitting light of a wavelength bandwidth substantially equal to a reflective wavelength bandwidth of the dichroic mirror means.