Also in recent years, remote diagnosis and remote treatment using a display device have been promoted. Also in this case, important factors in decision on medical examination and/or treatment include a patient's complexion and/or color of the affected area. However, display devices have not been able to sufficiently reproduce color of each of these objects.

[0005]

It is therefore required that a color image of a display object being displayed by a display device reproduces color of the display object itself. For example, it is known that an ambient light sensor is attached to an image display device and detects an image displayed by the image display device according to image data, thereby enabling calibration of the image data (see Patent Literature 1). In Patent Literature 1, the ambient light sensor itself is calibrated, and the color image of the display object being displayed by the display device reproduces the color of the display object itself.

[CITATION LIST]

[Patent Literature]

[0006]

[Patent Literature 1]

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[SUMMARY OF INVENTION]

[Technical Problem]

[0007]

The image display device of Patent Literature 1 however needs to attach the ambient light sensor to the image display device. Otherwise, in general display devices, a color image of a display object being displayed is difficult to reproduce color of the display object itself.

[0008]

Embodiments of the present invention seek to provide a color difference adjustment image data generation

method, a color difference adjustment image display method, a color difference adjustment image data generating device, and a color difference adjustment image display system, capable of displaying a color image of a display object being displayed by a display device with high color reproducibility.

[Solution to Problem]

[0008a] According to a first aspect of the present invention, there is provided a color difference adjustment image data generation method comprising:

generating a color signal conversion table for converting color signals in one of a color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image being displayed by the color difference adjustment image data generating device according to the standard color signal data;

causing the color difference adjustment image data generating device to display an image of a display object according to image data of the display object obtained by capturing the image of the display object and generating adjusted image data by adjusting the image data so that color of the image of the display object being displayed by the color difference adjustment image data generating device matches color of the display object; and

generating color difference adjustment image data including the adjusted image data and the color signal conversion table.

[0008b] According to a second aspect of the present invention, there is provided a color difference adjustment image display method comprising:

generating a color signal conversion table for converting color signals in one of a color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device

according to standard color signal data matches color of an image being displayed by the color difference adjustment image data generating device according to the standard color signal data;

causing the color difference adjustment image data generating device to display an image of a display object according to image data of the display object obtained by capturing the image of the display object and generating adjusted image data by adjusting the image data so that color of the image of the display object being displayed by the color difference adjustment image data generating device matches color of the display object;

generating color difference adjustment image data including the adjusted image data and the color signal conversion table; and

causing the display device to display an image of the display object based on the color difference adjustment image data.

[0008c] According to a third aspect of the present invention, there is provided a color difference adjustment image data generating device comprising:

storage;

a display section; and

a controller configured to control the display section, wherein

the storage stores image data of a display object obtained by capturing an image of the display object,

the storage stores a color signal conversion table for converting color signals in one of the color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image being displayed by the display section according to the standard color signal data,

the controller causes the display section to display the image of the display object according to the image data of the display object, and causes the storage to store adjusted image data generated by adjusting the image data so that color of the image of the display object being displayed by the display section matches color of the display object, and

the controller generates color difference adjustment image data including the adjusted image data and the color signal conversion table.

[0008d] According to a fourth aspect of the present invention, there is provided a color difference adjustment image display system comprising:

a color difference adjustment image data generating device; and

a display device, wherein

the color difference adjustment image data generating device stores image data of a display object obtained by capturing an image of the display object,

the color difference adjustment image data generating device stores a color signal conversion table for converting color signals in one of the color difference adjustment image data generating device and the display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image being displayed by the color difference adjustment image data generating device according to the standard color signal data,

the color difference adjustment image data generating device displays the image of the target object according to the image data and generates adjusted image data by adjusting the image data so that color of the image of the display object being displayed by the color difference adjustment image data generating device matches color of the display object,

the color difference adjustment image data generating device generates color difference adjustment image data including the adjusted image data and the color signal conversion table, and

the display device displays an image of the display object based on the color difference adjustment image data.

[0009]

There is disclosed a color difference adjustment image data generation method, the method includes generating a color signal conversion table, generating adjusted image data, and generating color difference adjustment image data. In the generating a color signal conversion table, the color signal conversion table is used for converting color signals in one of a color difference adjustment image data generating device and a display device into color signals in another of the color difference adjustment image data generating device and the display device. In the generating adjusted image data, the adjusted image data is generated by adjusting image data of a display object so that color of an image of the display object being displayed by the color difference adjustment image data generating device according to the image data of the display object matches color of the display object. In the generating color difference adjustment image data, the color difference adjustment image data is generated based on the adjusted image data and the color signal conversion table.

[0010]

In the generating color difference adjustment image data in an embodiment, the color difference adjustment image data contains the adjusted image data and the color signal conversion table.

[0011]

In an embodiment, the generating a color signal conversion table includes measuring color of an image that the color difference adjustment image data generating device displays according to standard color signal data, measuring color of an image that the display device displays according to the standard color signal data, and

generating the color signal conversion table so that the color of the image displayed by the display device matches the color of the image displayed by the color difference adjustment image data generating device.

[0012]

In an embodiment, the generating adjusted image data includes capturing the image of the display object to generate the image data, and adjusting the image data to generate the adjusted image data.

[0013]

There is disclosed a color difference adjustment image display method, the method includes generating a color signal conversion table, generating adjusted image data, generating color difference adjustment image data, and displaying an image of a display object. In the generating a color signal conversion table, the color signal conversion table is used for converting color signals in one of a color difference adjustment image data generating device and a display device into color signals in another of the color difference adjustment image data generating device and the display device. In the generating adjusted image data, the adjusted image data is generated by adjusting image data of the display object so that color of an image being displayed by the color difference adjustment image data generating device according to the image data of the display object matches color of the display object. In the generating color difference adjustment image data, the color difference adjustment image data is generated based on the adjusted image data and the color signal conversion table. In the displaying an image of a display object, the display device displays the image of the display object based on the color difference adjustment image data.

[0014]

In an embodiment, the color difference adjustment image display method further includes setting a display screen of the display device before the display device displays the image of the display object.

[0015]

In an embodiment, in the setting a display screen of the display device, the display screen of the display device is set to be the same as a display screen of the display device when the color signal conversion table was generated.

[0016]

There is provided a color difference adjustment image data generating device, the device includes storage, a display section, and a controller. The controller controls the display section. The storage stores image data of a display object and a color signal conversion table for converting color signals in one of the color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device. The storage stores adjusted image data generated by adjusting the image data so that color of an image of the display object being displayed by the display section according to the image data matches color of the display object. The controller generates color difference adjustment image data based on the adjusted image data and the color signal conversion table.

[0017]

There is disclosed a color difference adjustment image display system , the system includes a color difference adjustment image data generating device and a display device. The color difference adjustment image data generating device stores image data of a display object and a color signal conversion table for converting color signals in one of the color difference adjustment image data generating device and the display device into color signals in an other of the color difference adjustment image data generating device and the display device. The color difference adjustment image data generating device generates adjusted image data by adjusting the image data so that color of an image of the display object being displayed by the color difference adjustment image data generating device according to the image data matches color of the display object. The color difference adjustment image data

CLAIMS

1. A color difference adjustment image data generation method comprising:

generating a color signal conversion table for converting color signals in one of a color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image being displayed by the color difference adjustment image data generating device according to the standard color signal data;

causing the color difference adjustment image data generating device to display an image of a display object according to image data of the display object obtained by capturing the image of the display object and generating adjusted image data by adjusting the image data so that color of the image of the display object being displayed by the color difference adjustment image data generating device matches color of the display object; and

generating color difference adjustment image data including the adjusted image data and the color signal conversion table.

2. The color difference adjustment image data generation method according to claim 1, wherein

in the generating color difference adjustment image data, the color difference adjustment image data is generated as a result of the adjusted image data and the color signal conversion table being combined.

3. A color difference adjustment image data generation method according to claim 1 or 2, wherein

the generating a color signal conversion table includes

measuring color of an image that the color difference adjustment image data generating device displays according to the standard color signal data;

measuring color of an image that the display device displays according to the standard color signal data; and

generating the color signal conversion table so that the color measured of the image displayed by the display device matches the color measured of the image displayed by the color difference adjustment image data generating device.

4. A color difference adjustment image data generation method according to any one of claims 1 to 3, wherein

the generating adjusted image data includes

capturing the image of the display object to generate the image data, and

adjusting the image data to generate the adjusted image data.

5. A color difference adjustment image display method comprising:

generating a color signal conversion table for converting color signals in one of a color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image being displayed by the color difference adjustment image data generating device according to the standard color signal data;

causing the color difference adjustment image data generating device to display an image of a display object according to image data of the display object obtained by capturing the image of the display object and generating adjusted image data by adjusting the image data so that color of the image of the display object being displayed by the color difference adjustment image data generating device matches color of the display object;

generating color difference adjustment image data including the adjusted image data and the color signal conversion table; and

causing the display device to display an image of the display object based on the color difference adjustment image data.

6. The color difference adjustment image display method according to claim 5, further comprising

setting luminance of a display screen of the display device before the causing the display device to display an image of the display object.

7. The color difference adjustment image display method according to claim 6, wherein

in the setting luminance of a display screen of the display device, the luminance of the display screen of the display device is set to be the same as luminance of a display screen of the display device when the color signal conversion table was generated.

8. A color difference adjustment image data generating device comprising:

storage;

a display section; and

a controller configured to control the display section, wherein

the storage stores image data of a display object obtained by capturing an image of the display object,

the storage stores a color signal conversion table for converting color signals in one of the color difference adjustment image data generating device and a display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image

being displayed by the display section according to the standard color signal data,

the controller causes the display section to display the image of the display object according to the image data of the display object, and causes the storage to store adjusted image data generated by adjusting the image data so that color of the image of the display object being displayed by the display section matches color of the display object, and

the controller generates color difference adjustment image data including the adjusted image data and the color signal conversion table.

9. A color difference adjustment image display system comprising:

a color difference adjustment image data generating device; and

a display device, wherein

the color difference adjustment image data generating device stores image data of a display object obtained by capturing an image of the display object,

the color difference adjustment image data generating device stores a color signal conversion table for converting color signals in one of the color difference adjustment image data generating device and the display device into color signals in an other of the color difference adjustment image data generating device and the display device so that color of an image being displayed by the display device according to standard color signal data matches color of an image being displayed by the color difference adjustment image data generating device according to the standard color signal data,

the color difference adjustment image data generating device displays the image of the target object according to the image data and generates adjusted image data by adjusting the image data so that color of the image of the display object being displayed by the color difference adjustment image data generating device matches color of the display object,

the color difference adjustment image data generating device generates color

difference adjustment image data including the adjusted image data and the color signal conversion table, and

the display device displays an image of the display object based on the color difference adjustment image data.