DESCRIPTION

SIGNAL GENERATING METHOD, SIGNAL GENERATING UNIT, AND PROGRAM

TECHNICAL FIELD

[0001]

The present disclosure relates to a visible light signal generating method, a signal generating unit, and a program.

BACKGROUND ART

[0002]

In recent years, a home-electric-appliance cooperation function has been introduced for a home network, with which various home electric appliances are connected to a network by a home energy management system (HEMS) having a function of managing power usage for addressing an environmental issue, turning power on/off from outside a house, and the like, in addition to cooperation of AV home electric appliances by internet protocol (IP) connection using Ethernet® or wireless local area network (LAN). However, there are home electric appliances whose computational performance is insufficient to have a communication function, and home electric appliances which do not have a communication function due to a matter of cost.

[0003]

In order to solve such a problem, Patent Literature (PTL) 1 discloses a technique of efficiently establishing communication between devices among limited optical spatial transmission devices which transmit information to a free space using light, by performing communication using plural single color light sources of illumination light.

Citation List

Patent Literature

[0004]

PTL 1: Unexamined Japanese Patent Publication No. 2002-290335

SUMMARY

[0005]

However, the conventional method is limited to a case in which a device to which the method is applied has three color light sources such as an illuminator.

[0006]

To solve such a problem, the present disclosure provides a signal generating method, a signal generating unit, and a program for a visible light signal enabling communication between various devices.

[0007]

A signal generating method according to one aspect of the present disclosure is a signal generating method for generating a visible light signal to be transmitted by way of a luminance change of a light source included in a transmitter, the method including: a determination step of determining, as a method for transmitting the visible light signal from the transmitter, one of a single-frame transmitting method for transmitting data as one frame and a multiple-frame transmitting method for transmitting the data while dividing the data into a plurality of frames; a first addition step of, when the multiple-frame transmitting method is determined to be the method for transmitting the visible light signal, generating partition type information indicating a type of data to be transmitted, and of generating combination data by adding the partition type information to the data to be transmitted; a dividing step of generating the plurality of frames each of which includes each of a plurality of data parts by dividing the combination data into the plurality of data parts; and a second addition step of generating the visible light signal by adding a preamble, being data indicating a head of a frame, to the head of each of the plurality of frames.

[007a]

According to an aspect, a signal generating unit that generates a visible light signal to be transmitted by way of a luminance change of a light source included in a transmitter, the signal generating unit comprising:

a determination unit that determines, as a method for transmitting the visible light signal from the transmitter, one of a single-frame transmitting method for transmitting data as one frame and a multiple-frame transmitting method for transmitting the data while dividing the data into a plurality of frames;

a first adder that, when the multiple-frame transmitting method is determined to be the method for transmitting visible light signal, generates partition type information indicating a type of data to be transmitted, and generates combination data by adding the partition type information to the data to be transmitted;

a divider that generates the plurality of frames, each of which includes each of a plurality of data parts, by dividing the combination data into the plurality of data parts; and

a second adder that generates the visible light signal by adding a preamble that is data indicating a head of a frame to the head of each of the plurality of frames.

[007b]

According to an aspect, a program executing on a computer for generating a visible light signal to be transmitted by way of a luminance change of a light source included in a transmitter, the program causing the computer to execute:

a determination step of determining, as a method for transmitting the visible light signal from the transmitter, one of a single-frame transmitting method for transmitting data as one frame and a multiple-frame transmitting method for transmitting the data while dividing the data into a plurality of frames;

a first addition step of, when the multiple-frame transmitting method is determined to be the method for transmitting visible light signal, generating partition type information indicating a type of data to be transmitted, and of generating combination data by adding the partition type information to the data to be transmitted;

a dividing step of generating the plurality of frames each of which includes each of a plurality of data parts by dividing the combination data into the plurality of data parts; and

a second addition step of generating the visible light signal by adding a preamble, which is data indicating a head of a frame, to the head of each of the plurality of frames.

[0008]

These general and specific aspects may be implemented using a system, a method, an integrated circuit, a computer program, or a computer-readable recording medium such as a CD-ROM, or any combination of systems, methods, integrated circuits, computer programs, or computer-readable recording media.

[0009]

The present disclosure can provide the signal generating method, the signal generating unit, and the program for the visible light signal enabling the communication between various devices other than lightings.

BRIEF DESCRIPTION OF DRAWINGS

[0010]

FIG. 1 is a diagram illustrating an example of an observation method of luminance of a light emitting unit in Embodiment 1.

FIG. 2 is a diagram illustrating an example of an observation method of