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(54) Title: STANDBY LED LIGHT FOR TELEVISION THAT CAN BE CONFIGURED BY THE USER

Fig. 1a

STANDBY LED LIGHT SETTINGS	DEFAULT
STANDBY LED COLOR	BLUE
STANDBY LED LIGHT INTENSITY	80
STANDBY LED EFFECT	HEART BEAT

(57) Abstract: The present invention relates to a systenn and method for operating a standby LED light that can be modified according to user preferences. The present invention more specifically pertains to an image display device receiving a plurality of broadcast program contents, said device comprising a display panel, an electronic control unit for effectuating operation thereof and a standby LED light activated in standby mode when said display panel is inactive.

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Description

STANDBY LED LIGHT FOR TELEVISION THAT CAN BE CONFIGURED BY THE USER

[0001] The present invention relates to a system and method for operating a standby LED light that can be modified according to user preferences.

[0002] It is well-known that standby LED light settings for TVs are configured by the manufacturer. Standby LED lights can only be used with their preconfigured settings without any possible way for the end user to modify them. This may cause undesirable situations for the user. For example, it may be annoying for a standby LED light to be very bright in a dimly lit bedroom or home theater room. In addition, the users may want to change the color of the standby LED light based on different rooms and personal preferences. To ensure customer satisfaction, it would be advantageous to provide a standby LED light which can be altered based on the preferences of the user.

[0003] Among others, a prior art publication in the technical field of the invention may be referred to as CN104349528, which discloses an LED status display system. The LED status display system comprises a pulse-width modulation (PWM) signal generation module, a power source module, a triggering module and a display module. The triggering module is connected to the PWM signal generation module and generates the first control signal. The display module comprises an LED lamp, an AND gate and a buffer and is also connected to the PWM signal generation module. The first control signal and the PWM signals are inputted into the AND gate to obtain the second control signal. The second control signals are inputted to a triode, to generate the third control signals. The first control signals, second control signals and third control signals are inputted to the buffer, which is connected to LED lamp. In this manner, the LED lamp can display a variety of different statuses based on different input signals from the buffer.

[0004] The present invention, on the other hand, addresses the situation where standby LED light settings for TVs will be modifiable by the user so that the light intensity, color and blinking effect of the standby LED light can be

adjusted based on the choices of the user.

[0005] It is further proposed that providing a system and method for operating a standby LED light is advantageous in that the automatically modified LED light is indicative of certain critical information.

[0006] The present invention provides a system and method for operating a standby LED light enabling the modification of its settings according to user preferences, as provided by the characterizing features defined in Claim 1.

[0007] Primary object of the present invention is to provide a system and method for operating a standby LED light by which the settings of the standby LED light, such as light intensity, color and blinking effect, are modifiable according to user preferences.

[0008] The present invention proposes an image display device configured to operate a standby LED light in a predetermined color and blinking effect in standby mode such that local weather and traffic information are accessed through a remote server preferably in the form of look-up tables as provided by a service provider. The standby LED light is the operated in an automatically configured predetermined color and blinking effect to be automatically modified depending on the real-time weather and traffic flow information.

[0009] The light intensity of said standby LED light is advantageously manually adjustable by the user or alternatively a light intensity sensor is used to automatically measure ambient light and drive the standby LED in proportion to ambient light as measured. A light dependent resistor (photoresistor) can be used in this respect.

[0010] Accompanying drawings are given solely for the purpose of exemplifying an image display device standby LED light, whose advantages over prior art were outlined above and will be explained in brief hereinafter.

[0011] The drawings are not meant to delimit the scope of protection as identified in the Claims, nor should they be referred to alone in an effort to interpret the scope identified in said Claims without recourse to the technical disclosure in the description of the present invention.

[0012] Fig. 1a demonstrates an exemplary list of available LED light setting

parameters with default values according to the present invention.

[0013] Fig. 1b demonstrates an exemplary list of user-defined LED light setting parameters according to the present invention.

[0014] Fig. 2 demonstrates an exemplary list of available options for each LED light setting parameter according to the present invention.

[0015] The present invention proposes an image display device certain parameters of the standby LED light of which is configurable. Standby LED lights can only be used with their preconfigured settings without any possible way for the end user to modify them. When standby LED light settings in the TV set are modifiable by the user, the light intensity, color and blinking effect of the light can be practically adjusted based on the choices of the user.

[0016] This is particularly advantageous in that undesirable situations for instance when the standby LED light is too bright in a dimly lit bedroom or home theater room are avoided. In addition, the users may want to change the color of the standby LED light based on different rooms and personal preferences.

[0017] According to the present invention, the image display device connects to a remote server to retrieve local weather and traffic information in a periodical manner and other than the intensity of the LED light, the color and blinking effect thereof are automatically modified depending on the weather and traffic flow information so that the user can obtain relevant information from the color and blinking effect of the LED light.

[0018] This is particularly advantageous in that the LED light is used as a source of information when the image display device is in standby mode. To this end, the image display device, when in standby mode, periodically connects to a wide area network (WAN) remote server to retrieve the required information and updates the color and blinking effect of the LED light. Therefore, the TV set's power consumption profile significantly corresponds to usual standby power profile with the exception that the image display device's electronic control unit periodically supplies power to the network interface card of the system and powers itself off for another predetermined time duration. Therefore, the automatically modified LED

light is indicative of certain user-defined information. This function is preferably activated only during daytime or between selected hours.

[0019] According to the present invention, the TV set menu interface includes TV Standby LED Configuration option so that the user can modify standby LED settings. Standby LED settings are initially configured by the manufacturer and the user can adjust these settings according to their preferences as they see fit.

[0020] The content of the TV Standby LED Configuration menu is designed to include several parameters such as LED Color, LED Light Intensity and LED Effect. The default settings can be configured by the user. “TV Standby LED Settings” option in the user menu is configured by default by the manufacturer. Unless the user changes the “TV Standby LED Settings” to “User”, the settings will remain as default. In order to configure their preferred settings, the user can select “TV Standby LED Settings” as “User” and typically select their preferences from the popup menu.

[0021] In accordance with the present invention, various standby LED colors are assigned to deliver a certain sub-information title belonging to a predetermined list of information titles. For instance, in a variation of the invention, the information title “weather condition” can have a predetermined number of predefined sub-information titles represented by the color of the LED light, each of these corresponding to different weather conditions such as rainy, sunny, snowy, windy, cloudy, foggy etc.

[0022] The standby LED light intensity can be modified by the user. As already pointed out, this is important and needed in a dimly lit bedroom. Further, the present invention also provides that the standby LED light effect, which determines the visual effect according to which the LED light is operated, is used to convey a certain sub-information title previously associated with a certain traffic density condition.

[0023] For instance, the visual effect in the form of soft transition between different LED effects signifies free traffic flow while heart beat effect signifies the situation where the optimum density is exceeded. The user can determine a certain location the traffic flow information of which is to be represented by the standby LED visual effect. Breakdown and jam

density conditions are also represented by other visual effects as preconfigured or set by the user.

[0024] In one embodiment of the present invention, an image display device is proposed, receiving a plurality of broadcast program contents, said device comprising a display panel, an electronic control unit for effectuating operation thereof and a standby LED light activated in standby mode when said display panel is inactive, i.e. non-powered.

[0025] In a further embodiment of the present invention said electronic control unit is configured to operate said standby LED light in a predetermined color and blinking effect in standby mode.

[0026] In a further embodiment of the present invention said standby LED light is operated in an automatically configured predetermined color and blinking effect in the manner that said electronic control unit is configured to connect to a remote server to retrieve local weather and traffic information and the color and blinking effect of the standby LED are automatically modified depending on the received weather and traffic flow information.

[0027] In a further embodiment of the present invention, light intensity of said standby LED light is manually adjustable.

[0028] In a further embodiment of the present invention, said image display device periodically connects to a remote server to retrieve real-time weather and traffic flow information and updates the color and blinking effect of the LED light.

[0029] In a further embodiment of the present invention, said electronic control unit periodically supplies power to a network interface card of the image display device and powers itself off for a predetermined time duration.

[0030] In a further embodiment of the present invention, real-time weather and traffic flow information is updated during daytime or between selected hours.

[0031] In a further embodiment of the present invention, a certain location the weather and traffic flow information of which is to be represented by the standby LED color and effect is manually set.

[0032] In a further embodiment of the present invention, the image display device comprises a light intensity sensor to automatically measure ambient light

and said electronic control unit drives the standby LED in proportion to ambient light as measured.

[0033] In a further embodiment of the present invention, the light intensity sensor is a light dependent resistor.

[0034] Therefore, it is to be noted that the standby LED light can provide a basic yet critical information in cases where the user has very limited time to reach more accurate information. Further, as the standby LED light conventionally only serves for performing a primitive standby mode display function, it is provided with additional functions thanks to the present invention.

Claims

1. An image display device receiving a plurality of broadcast program contents, said device comprising a display panel, an electronic control unit for effectuating operation thereof and a standby LED light activated in standby mode when said display panel is inactive **characterized in that**;
said electronic control unit is configured to operate said standby LED light in a predetermined color and blinking effect in standby mode and,
said standby LED light is operated in an automatically configured predetermined color and blinking effect in the manner that said electronic control unit is configured to connect to a remote server to retrieve local weather and traffic information and the color and blinking effect of the standby LED light are automatically modified depending on the received weather and traffic flow information.
2. An image display device as in Claim 1, **characterized in that** light intensity of said standby LED light is manually adjustable.
3. An image display device as in Claim 1 or 2, **characterized in that** said image display device periodically connects to a remote server to retrieve real-time weather and traffic flow information and updates the color and blinking effect of the LED light.
4. An image display device as in Claim 3, **characterized in that** said electronic control unit periodically supplies power to a network interface card of the image display device and powers itself off for a predetermined time duration.
5. An image display device as in any preceding Claim, **characterized in that** real-time weather and traffic flow information is updated during daytime or between selected hours.
6. An image display device as in any preceding Claim, **characterized in that** a certain location the weather and traffic flow information of which is represented by the standby LED color and effect is manually set.
7. An image display device as in Claim 1, **characterized in that** the image display device comprises a light intensity sensor to automatically measure ambient light and said electronic control unit drives the standby LED in proportion to ambient light as measured.
8. An image display device as in Claim 7, **characterized in that** the light intensity

sensor is a light dependent resistor.

Fig. 1a

STANDBY LED LIGHT SETTINGS	DEFAULT
STANDBY LED COLOR	BLUE
STANDBY LED LIGHT INTENSITY	80
STANDBY LED EFFECT	HEART BEAT

Fig. 1b

STANDBY LED LIGHT SETTINGS	USER
STANDBY LED COLOR	YELLOW
STANDBY LED LIGHT INTENSITY	42
STANDBY LED EFFECT	SOFT TRANSITION

Fig. 2

STANDBY LED LIGHT SETTINGS	USER
STANDBY LED COLOR	YELLOW
	BLUE
	RED
	GREEN
	ORANGE
	PINK
	WHITE
	INDIGO
	PURPLE
STANDBY LED LIGHT INTENSITY	42
STANDBY LED EFFECT	SOFT TRANSITION
	HEART BEAT
	BREATHING
	TRAFFIC LIGHTS

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H05B H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012/030703 A1 (STRONG STEPHEN [US]) 2 February 2012 (2012-02-02) paragraphs [0046] - [0049]; figure 1	1-8
A	US 2006/048207 A1 (MARTIN ALEXANDER [US]) 2 March 2006 (2006-03-02) paragraphs [0019] - [0021]; figure 2	1-8
A	DE 102 17 936 A1 (WALLRAFEN WERNER [DE]) 6 November 2003 (2003-11-06) paragraphs [0033] - [0036]; figure 1	1-8

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2017/077754

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2012030703 A1	02-02-2012	NONE	
US 2006048207 A1	02-03-2006	NONE	
DE 10217936 A1	06-11-2003	NONE	