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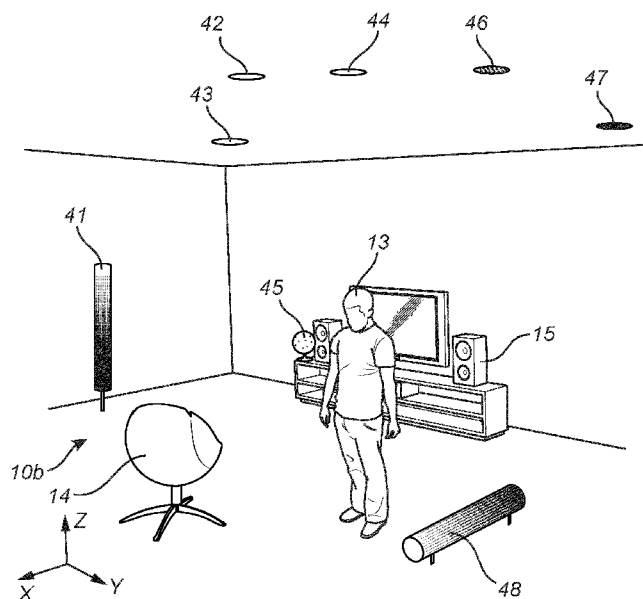


Fig. 5

(57) Abstract: A method for controlling lighting devices (4; 41-48) in a lighting system (1), the lighting system comprising a user interface (3), a controller (2) and one or more lighting devices (41-48) configured to, in operation, emit light, the method comprising, by the controller (2), obtaining (101) locations of the one or more lighting devices (41-48) relative to a 2D space (10a) or a 3D space (10b), receiving and displaying (102) on the user interface a color gradient (6), receiving (103) user input indicative of an adjustment of the color gradient (6), mapping (104) the color gradient (6) onto the locations of the one or more lighting devices (41-48), determining (105), based on the mapping, which colors of the color gradient (6) correspond to the respective locations of the respective one or more lighting devices (41-48), and controlling (106) the one or more lighting devices (41-48) according to the determined colors.

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A method for controlling lighting devices in a lighting system

FIELD OF THE INVENTION

The invention relates to a method for controlling lighting devices in a lighting system, the lighting system comprising a user interface, a controller and one or more lighting devices configured to, in operation, emit light.

5 The invention further relates to a lighting system comprising a user interface, a controller and one or more lighting devices configured to, in operation, emit light.

 The term “color gradient” is a term of the art and is to be interpreted in accordance with its commonly understood meaning. In particular, a color gradient (or color progression or color ramp) refers generally to a range of colors extending across a
10 corresponding range of consecutive positions within a space and having colors which progress or transition from at least a first color to at least a second color.

BACKGROUND OF THE INVENTION

 Pixelated lighting devices enable a huge number of light content patterns.
15 However, users also appreciate smooth light effects, such as color gradients created on the Hue gradient product range.

 Prior art set-up configurations enable users to indicate the approximate or relative positions of their lighting devices. Advances in positioning and 3D room scan technologies will provide further detail to such 3D models which can be exploited in the
20 creation of light scenes.

 D1 WO 2022043191 A) discloses a system is configured to display a visual representation of a color space and repositionable virtual representations of individually addressable light segments overlaid on the visual representation of the color space. The light segments have a fixed spatial relationship in an array and the virtual representations have initial positions. The system is further configured to receive user input indicative of a change of
25 one or more of the initial positions of the virtual representations and determine further positions for the virtual representations based on the initial positions and the indicated change of the one or more of the initial positions. The initial and further positions are in order of the fixed spatial relationship.

US 2019/0335560 A1 discloses a lighting device comprising an array of controllable light emitting pixels, each pixel having an adjustable light output color. A controller is configured to receive a limited set of light output colors and to locally process these light output colors to form a color gradient pattern to be displayed across pixels of the array.

At many moments, such as when relaxing, people appreciate calm and smooth light effects, with a limited number of color differences over a period of time. However, with the growing number of lighting devices it becomes challenging for the user to manually create beautiful light scenes which are both spatially and temporally smooth.

Therefore, there is a desire to provide a method for controlling lighting devices in a lighting system, the lighting system comprising a user interface, a controller and one or more lighting devices configured to, in operation, emit light with which is it possible for the user to manually create beautiful light scenes which are both spatially and temporally smooth, even when the number of lighting devices is very large.

SUMMARY OF THE INVENTION

It is an object of the present invention to overcome this problem, and to provide a method for controlling lighting devices in a lighting system, the lighting system comprising a user interface, a controller and one or more lighting devices configured to, in operation, emit light with which is it possible for the user to manually create beautiful light scenes which are both spatially and temporally smooth, even when the number of lighting devices is very large.

According to a first aspect of the invention, this and other objects are achieved by means of a method for controlling lighting devices in a lighting system, the lighting system comprising a user interface, a controller and one or more lighting devices configured to, in operation, emit light, the method comprising, by the controller: obtaining locations of the one or more lighting devices relative to a 2D space or a 3D space; receiving and displaying on the user interface a color gradient; receiving user input indicative of an adjustment of the color gradient; mapping the color gradient onto the 2D space or the 3D space and onto the obtained locations of the one or more lighting devices; determining, based on the mapping, which colors of the color gradient correspond to the respective locations of the respective one or more lighting devices; and controlling the one or more lighting devices according to the determined colors.

Thereby, and in particular by providing the above steps being performed by the controller of the lighting system a method for controlling lighting devices in a lighting system, the lighting system comprising a user interface, a controller and one or more lighting devices configured to, in operation, emit light is provided with which is it possible for the user to manually create beautiful light scenes which are both spatially and temporally smooth, even when the number of lighting devices is very large.

In an embodiment, the space is a 2D space, and the color gradient is a 2D color gradient.

In an embodiment, the space is a 3D space, and the color gradient is a 3D color gradient.

Thereby, the above advantage is obtainable for lighting devices distributed in a 2D space or a 3D space. This in turn enables the user to manually create beautiful light scenes which are both spatially and temporally smooth, even when the number of lighting devices is very large, and which may furthermore be closely adapted to the user's real world surroundings.

In an embodiment, the color gradient is associated with at least two color anchor points, and the user input indicative of an adjustment of the color gradient comprises input indicative of an adjustment of at least one of the at least two color anchor points.

Thereby, a target anchor color is set on the user interface, which in turn enables the gradient to be stretched across the space, such as for example a room, in a particularly simple and intuitive way.

In an embodiment, the at least two color anchor points are generated as an overlay on the color gradient.

For instance, the at least two color anchor points may be generated on the user interface, particularly on a display device of the user interface, which is configured to render a graphical overlay on top of a virtual representation of the lighting system or on top of an image or view on the lighting system. Thereby the virtual correspondence between the color anchor points and the color gradient is established in a particularly simple manner and may be presented to the user in an easy to understand manner.

In an embodiment, the user input indicative of an adjustment of the color gradient comprises input indicative of an adjustment of any one or more of: at least one color of the color gradient; and at least one desired color of the light to be emitted by of at least one of the one or more lighting devices.

Thereby, a method is provided with which the user is presented with different options for customizing the color gradient and thereby the light scene obtained.

In an embodiment, at least one lighting device of the one or more lighting devices is assigned a role, and the one or more lighting devices are further controlled based on the role assigned to the at least one lighting device.

The role of the at least one lighting device may for instance be defined by the user or learned by the system. For instance, functional light sources above a table, accent lights on an artwork or near a user may not participate in the color gradient rendering. Or alternatively, a setting derived from the assigned color value such as a desaturated color version (e.g. close to white) may be rendered.

Thereby, a method is provided with which beautiful light scenes which are both spatially and temporally smooth, even when the number of lighting devices is very large, and which may furthermore take the use of the light of the individual lighting devices into account may be obtained.

In an embodiment, the locations of the one or more lighting devices are defined to comprise or include an effect region, the effect region being a region of the 2D space or the 3D space in which the respective lighting device is expected to have an effect exceeding a predetermined effect threshold.

Thereby, more precise light scenes, especially in the case of a 3D space, may be provided for.

In an embodiment, the effect region is determined based on one or more of the intended use, the type, the shape and the orientation of the respective lighting device.

Thus, next to the light source position, the effect region may be derived from the lighting device type, its shape (e.g. for a flexible light strip) and its orientation. For instance, the light of a deeply recessed, collimated downlighting device may be predominantly located on the floor underneath. Thereby, particularly precise effect regions may be obtained.

In an embodiment, the method further comprises proposing to a user input indicative of an adjustment of the color gradient based on the location and the type of at least some lighting devices of the one or more lighting devices.

For instance, in the case of lighting devices distributed in a 2D space or in particular a 3D space, the location of color anchor points doesn't have to coincide with a physical location of the lighting devices. Instead, the location of the color anchor points may be suggested by the system based on density, locations and types of lighting devices present

in the environment. Additionally, when rendering of a color gradient mapped to a 3D model, the gradient can also be defined in 3D space. For instance, different color space models could be used to build a 3D gradient, such as for example a sRGB color space. In this case the system may propose to or ask the user for a third color.

5 Thereby, a method is provided with which beautiful light scenes which are both spatially and temporally smooth, even when the number of lighting devices is very large, and which may furthermore take the above-mentioned further parameters into account may be obtained.

10 In an embodiment, the user generated input indicative of an adjustment of the color gradient is further chosen or proposed in dependence of a detected, an expected or a typical user position relative to the space.

15 While making the color gradient mapping, if desired by the user, the lighting devices closer to a detected or typical user position may in this way be adjusted in color saturation or brightness, such that the user will not be emerged in saturated color light. It is in this connection also possible to add a de-saturated or close-to-white color anchor point explicitly or automatically at the position where users are detected or expected.

20 The invention further relates to a lighting system comprising a controller, a user interface, and one or more lighting devices configured to, in operation, emit light, the controller being configured to: obtain locations of the one or more lighting devices relative to a 2D space or a 3D space; receive and display on the user interface a color gradient; receive user input indicative of an adjustment of the color gradient; map the color gradient onto the 2D space or the 3D space and onto the obtained locations of the one or more lighting devices; determine, based on the mapping, which colors of the color gradient correspond to the respective locations of the respective one or more lighting devices; and control the one or
25 more lighting devices according to the determined colors.

 In an embodiment of the lighting system, the space is a 2D space, and the color gradient is a 2D color gradient.

 In an embodiment of the lighting system, the space is a 3D space, and the color gradient is a 3D color gradient.

30 In an embodiment of the lighting system, the controller further is configured to propose to a user input indicative of an adjustment of the color gradient based on the location and the type of at least some lighting devices of the one or more lighting devices.

 In an embodiment of the lighting system, the color gradient is associated with at least two color anchor points, and the user input indicative of an adjustment of the color

gradient comprises input indicative of an adjustment of at least one of the at least two color anchor point.

In an embodiment of the lighting system, the user input indicative of an adjustment of the color gradient comprises input indicative of an adjustment of at least one color of the color gradient, and at least one desired color of the light to be emitted by at least one of the one or more lighting devices.

In an embodiment of the lighting system, the locations of the one or more lighting devices are defined to comprise or include an effect region, the effect region being a region of the 2D space or the 3D space in which the respective lighting device is expected to have an effect exceeding a predetermined effect threshold.

In an embodiment of the lighting system, the user generated input indicative of an adjustment of the color gradient is further chosen or proposed in dependence of a detected, an expected or a typical user position relative to the space.

In an embodiment of the lighting system, at least one lighting device of the one or more lighting devices are assigned a role, and the controller further is configured to control the one or more lighting devices based on the role assigned to the at least one lighting device.

In an embodiment the lighting system is a connected lighting system. That is, the one or more lighting devices are connected in a network, such as a distributed network. A typical distributed network for such a purpose is a Zigbee-based network. Other feasible types of network include a Thread-based network, a Wi-Fi-based network, a network using Bluetooth mesh technology and a network using Bluetooth Low Energy.

It is noted that the invention relates to all possible combinations of features recited in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

This and other aspects of the present invention will now be described in more detail, with reference to the appended drawings showing embodiment(s) of the invention.

Fig. 1 shows a schematic diagram illustrating a lighting system according to the invention.

Fig. 2 illustrates an exemplary color gradient.

Fig. 3 shows a user interface illustrating a color gradient with color anchor points overlayed on the color gradient.

Fig. 4 shows an exemplary 2D space with a plurality of lighting devices.

Fig. 5 shows an exemplary 3D space with a plurality of lighting devices.

Fig. 6 shows a flow diagram illustrating a first embodiment of a method according to the invention.

Fig. 7 shows a flow diagram illustrating a second embodiment of a method according to the invention.

The figures are provided to illustrate the general structures of embodiments of the present invention. Like reference numerals refer to like elements throughout.

DETAILED DESCRIPTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which currently preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided for thoroughness and completeness, and fully convey the scope of the invention to the skilled person.

Fig. 1 shows a schematic diagram illustrating a lighting system 1 according to the invention. The lighting system 1 generally and irrespective of the embodiment comprises a user interface 3, a controller 2 and at least one lighting device 4 configured to, in operation, emit light.

Fig. 1 illustrates an embodiment in which the lighting system 1 comprises four lighting devices 41, 42, 43, 44. However, the lighting system may also comprise any other number of lighting devices, for instance six lighting devices 41-46 as shown in Fig. 4 or eight lighting devices 41-48 as shown in Fig. 5. The lighting devices 41-44 may be of the same type or of different types. Feasible types of lighting devices encompass, but is not limited to, linear lighting devices 41 (Figs. 4 and 5), portable lighting devices, pendants, chandeliers, floor lamps 42-44 (Fig. 5), table lamps 45 (Fig. 5), wall hung lamps, uplights, downlights and so forth.

In the embodiment shown in Fig. 1, the user interface 3 forms part of the controller 2. This may be the case when the controller 2 is, for instance, a mobile telephone, a tablet computer or a laptop computer. In other embodiments the user interface 3 may be separate from the controller 2.

The lighting system 1 shown in Fig. 1 further comprises a bridge device 5. In some embodiments the controller 2 and the bridge device 5 may be one and the same element or device. In other embodiments the controller 2 and the bridge device 5 are mutually

separate elements or devices. In the latter case, the controller 2 is connected to the bridge device 5 (arrow 18), and the bridge device 5 is connected to the lighting devices 4 (arrows 17), over the network. Alternatively, the bridge device 5 may be omitted in which case the controller 2 is connected to and communicates directly with the lighting devices 4, over the network (arrow 16).

Generally, the lighting system 1, and in particular the controller 2, is configured to perform a method according to any embodiment of the invention and as described further below with reference to Figs 6 and 7.

More particularly, the controller 2 is generally configured to obtain locations of the one or more lighting devices 41-44 relative to a 2D space 10a (cf. Fig. 4) or a 3D space 10b (cf. Fig. 5), receive and display on the user interface 3 a color gradient 6 (cf. Figs. 2 and 3), receive user input indicative of an adjustment of the color gradient 6, map the color gradient 6 onto the locations of the lighting devices 41-44, determine, based on the mapping, which colors of the color gradient 6 correspond to the respective locations of the respective lighting devices 41-44, and control the one or more lighting devices 41-44 according to the determined colors.

Thus, the space relative to which the location of the respective lighting devices 41-44 are determined may be a 2D space 10a as illustrated in Fig. 4 and defined by two coordinates, X and Y. In this case the color gradient 6 is a 2D color gradient as illustrated in Figs. 2 and 3 and likewise defined by two coordinates, X and Y. Alternatively, the space is may be a 3D space 10b as illustrated in Fig. 5 and defined by three coordinates, X, Y and Z, and the color gradient 6 is a 3D color gradient likewise defined by three coordinates, X, Y and Z.

As is illustrated in Figs. 2 and 3, the color gradient 6 may be associated with two or more color anchor points 81, 82, 83. The color anchor points 81, 82, 83 may coincide with the location of the lighting devices 41-44. However, in case of the lighting devices being distributed in the space 10a or 10b, the location of the color anchor points 81, 82, 83 need not necessarily coincide with a physical location of a lighting device 41-44. Instead, the color anchor points 81, 82, 83 may be suggested by the lighting system 1, particularly by the controller 2, based on density, locations and types of lighting devices 41-44 present in the space 10a or 10b.

Referring particularly to Fig. 3, the two or more color anchor points 81, 82, 83 define a line 7 through the color gradient 6 in the 2D space 10a or the 3D space 10b. Such a line 7 may be denoted a color gradient line. The line 7 may, but need not necessarily, follow one or more of the axes X, Y and Z of the space 10a or 10b. That is, the line 7 may be

straight line or a curved line. The color anchor points 81, 82, 83 are shown on the user interface 3 overlaid on the color gradient 6. For instance, the color anchor points 81, 82, 83 may be generated on the user interface 3, particularly on a display of the user interface 3. To this end the user interface 3 may be configured to render a graphical overlay on top of a virtual representation of the lighting system 1 or on top of an image or view on the lighting system 1. The user may then for instance adjust the color gradient 6, and thus generate input indicative of an adjustment of the color gradient 6, by using a finger or hand 9 to move one or more of the color anchor points 81, 82, 83 on the user interface 3. In this case the user interface 3 is a touch sensitive user interface 3. In an alternative, the user may for instance adjust the color gradient 6, and thus generate input indicative of an adjustment of the color gradient 6, by entering new or adjusted coordinates for one or more of the color anchor points 81, 82, 83.

The user input indicative of an adjustment of the color gradient may comprise input indicative of an adjustment of at least one of the color anchor points 81, 82, 83.

Additionally or alternatively, the user input indicative of an adjustment of the color gradient 6 may comprise input indicative of an adjustment of at least one color of the color gradient 6 and/or at least one desired color of the light to be emitted by at least one of the lighting devices 41-44. At least in this case, the color anchor points 81, 82, 83 are not strictly necessary and may be omitted.

As is illustrated on Fig. 4, the locations of the one or more lighting devices 41-44, such as lighting devices 41 and 44 shown on Fig. 4, may further be defined to comprise or include an effect region 11, 12. The effect region 11, 12 is a region of the 2D space 10a (or if applicable the 3D space 10b) in which the respective lighting device 41, 44 is expected to have the most prominent effect or in other words an effect exceeding a predetermined effect threshold. The effect region 11, 12 of a lighting device may be defined based on the position of the lighting device or its light source(s). The effect region 11, 12 of a lighting device may further, additionally or alternatively, be defined based on one or more of the type of the lighting device, the shape of the lighting device, the position or location of the lighting device and the orientation of the lighting device. The shape of the lighting device would be relevant for instance for a flexible light strip. For instance, the effect region of a deeply recessed, collimated downlighting device may be predominantly located on the floor underneath. The predetermined threshold may for instance be a threshold value of intensity per area and/or intensity per second at a given or predetermined location.

The user generated input indicative of an adjustment of the color gradient 6 may further be chosen or proposed in dependence of a detected, an expected or a typical position of a user 13 (Fig. 5) relative to the 3D space 10b (or if applicable the 2D space 10a). For instance, the color gradient 6 may then be adjusted in color saturation or brightness, such that the user 13 will not be emerged in saturated color light. It is also possible to add a close-to-white color anchor point explicitly or automatically at the position where a user 13 are detected or expected. It is also possible to, in this way, take more than one user 13 into account.

In a similar manner it is also possible that the user generated input indicative of an adjustment of the color gradient 6 may, alternatively or additionally, be chosen or proposed in dependence of a detected, an expected or a typical position of an object (Fig. 5), such as a chair 14, a HIFI device such as a loudspeaker 15, or a TV, relative to the 3D space 10b (or if applicable the 2D space 10a).

Also, at least one of the lighting devices 41-44 may be assigned a role. The controller 2 may then be configured to control the one or more lighting devices 41-44 also based on the role assigned to the at least one lighting device 41-44. Non-limiting examples of such roles could be a role as a functional light sources above a table, as an accent light on an artwork or as a lighting device near a user. Such lighting devices may or may not be taken into account in a method according to the invention.

Fig. 6 shows a flow diagram illustrating a first embodiment of a method for controlling lighting devices 4 in a lighting system 1 according to the invention. The method generally comprises performing the following steps by means of the controller 2.

In step 101, locations of the one or more lighting devices 41-44 relative to a 2D space 10a or a 3D space 10b are obtained.

In step 102, a color gradient 6 is received and displayed on the user interface 3.

In step 103, user input indicative of an adjustment of the color gradient 6 is received.

In step 104, the color gradient 6 is mapped onto the locations of the one or more lighting devices 41-44.

In step 105, it is determined, based on the mapping made in step 104, which colors of the color gradient 6 correspond to the respective locations of the respective one or more lighting devices 41-44.

Finally, in step 106, the one or more lighting devices 41-44 are controlled according to the colors determined in step 105.

In embodiments where the one or more lighting devices 41-44 are assigned a role, the method may comprise a further step in which the controller 2 obtains the roles of the one or more lighting devices 41-44. This step may for instance form part of step 101 described above, or it may be a separate step. Step 106 may then comprise that the controller 2 when controlling the one or more lighting devices 41-44 also takes into account the roles assigned to the one or more lighting devices 41-44.

Finally, Fig. 7 shows a flow diagram illustrating a second embodiment of a method for controlling lighting devices 4 in a lighting system 1 according to the invention. The method according to Fig. 7 differs from that described above in relation to Fig. 6 only in comprising a further, optional, step performed by means of the controller 2.

The further step 107 comprises proposing to a user 13 input indicative of an adjustment of the color gradient 6 based on the location and the type of at least some lighting devices of the one or more lighting devices 41-44. For instance, the proposed user generated input may be proposed in dependence of a detected, an expected or a typical position of a user 13 relative to the space. The further step 107 may for instance be performed after step 102, but in any event before step 103, as described above with reference to Fig. 6.

The person skilled in the art realizes that the present invention by no means is limited to the preferred embodiments described above. On the contrary, many modifications and variations are possible within the scope of the appended claims.

Additionally, variations to the disclosed embodiments can be understood and effected by the skilled person in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims. In the claims, the word "comprising" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

CLAIMS:

1. A method for controlling lighting devices in a lighting system (1), the lighting system comprising a user interface (3), a controller (2) and one or more lighting devices (41-48) configured to, in operation, emit light, the method comprising, by the controller:

obtaining (101) locations of the one or more lighting devices relative to a 2D space (10a) or a 3D space (10b),

receiving and displaying (102) on the user interface a color gradient (6),

receiving (103) user input indicative of an adjustment of the color gradient,

mapping (104) the color gradient onto the 2D space (10a) or the 3D space (10b) and onto the obtained locations of the one or more lighting devices,

determining (105), based on the mapping, which colors of the color gradient correspond to the respective locations of the respective one or more lighting devices, and

controlling (106) the one or more lighting devices according to the determined colors,

wherein the space is a 2D space (10a), and the color gradient (6) is a 2D color gradient, or

wherein the space is a 3D space (10b), and the color gradient (6) is a 3D color gradient.

2. A method according to any one of the above claims, wherein the color gradient (6) is associated with at least two color anchor points (81, 82, 83), and wherein the user input indicative of an adjustment of the color gradient comprises input indicative of an adjustment of at least one of the at least two color anchor points.

3. A method according to claim 2, wherein the at least two color anchor points (81, 82, 83) are generated as an overlay on the color gradient.

4. A method according to any one of the above claims, wherein the user input indicative of an adjustment of the color gradient (6) comprises input indicative of an adjustment of any one or more of:

at least one color of the color gradient, and
at least one desired color of the light to be emitted by of at least one of the one or more lighting devices.

5 5. A method according to any one of the above claims, wherein at least one lighting device of the one or more lighting devices (41-48) is assigned a role, and wherein the one or more lighting devices are further controlled based on the role assigned to the at least one lighting device.

10 6. A method according to any one of the above claims, wherein the locations of the one or more lighting devices (41-48) are defined to comprise or include an effect region (11, 12), the effect region being a region of the 2D space or the 3D space in which the respective lighting device is expected to have an effect exceeding a predetermined effect threshold.

15 7. A method according to claim 6, wherein the effect region (11, 12) is determined based on one or more of the intended use, the type, the shape and the orientation of the respective lighting device.

20 8. A method according to any one of the above claims, and further comprising proposing to a user (13) input indicative of an adjustment of the color gradient (6) based on the location and the type of at least some lighting devices of the one or more lighting devices.

9. A method according to any one of the above claims, wherein the user
25 generated input indicative of an adjustment of the color gradient (6) is further chosen or proposed in dependence of a detected, an expected or a typical user position relative to the space.

10. A lighting system (1) comprising:
30 a controller (2),
a user interface (3), and
one or more lighting devices (4; 41-48) configured to, in operation, emit light,
the controller (2) being configured to:

obtain locations of the one or more lighting devices relative to a 2D space or a 3D space,

receive and display on the user interface a color gradient (6),

receive user input indicative of an adjustment of the color gradient,

5 map the color gradient onto the 2D space (10a) or the 3D space (10b) and onto the obtained locations of the one or more lighting devices,

determine, based on the mapping, which colors of the color gradient correspond to the respective locations of the respective one or more lighting devices, and

control the one or more lighting devices according to the determined colors,

10 wherein the space is a 2D space (10a), and the color gradient (6) is a 2D color gradient, or

wherein the space is a 3D space (10b), and the color gradient (6) is a 3D color gradient.

15 11. A lighting system according to claim 10, wherein the controller (2) further is configured to propose to a user input indicative of an adjustment of the color gradient based on the location and the type of at least some lighting devices of the one or more lighting devices.

20 12. A lighting system according to claim 10 or 11, wherein one or more of the following applies:

the color gradient (6) is associated with at least two color anchor points (81, 82, 83), and the user input indicative of an adjustment of the color gradient comprises input indicative of an adjustment of at least one of the at least two color anchor points,

25 the user input indicative of an adjustment of the color gradient (6) comprises input indicative of an adjustment of at least one color of the color gradient, and at least one desired color of the light to be emitted by at least one of the one or more lighting devices,

the locations of the one or more lighting devices are defined to comprise or include an effect region (11, 12), the effect region being a region of the 2D space or the 3D space in which the respective lighting device is expected to have an effect exceeding a
30 predetermined effect threshold, and

the user generated input indicative of an adjustment of the color gradient (6) is further chosen or proposed in dependence of a detected, an expected or a typical user position relative to the space.

13. A lighting system according to any one of claims 10 to 12, wherein at least one lighting device of the one or more lighting devices (41-48) are assigned a role, and wherein the controller (2) further is configured to control the one or more lighting devices
- 5 based on the role assigned to the at least one lighting device.

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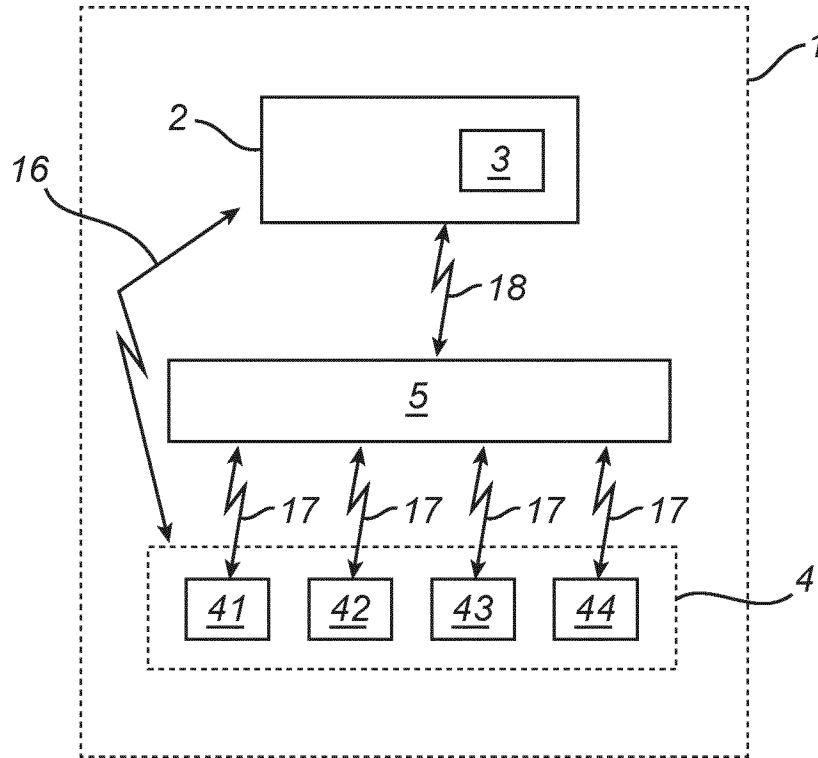


Fig. 1

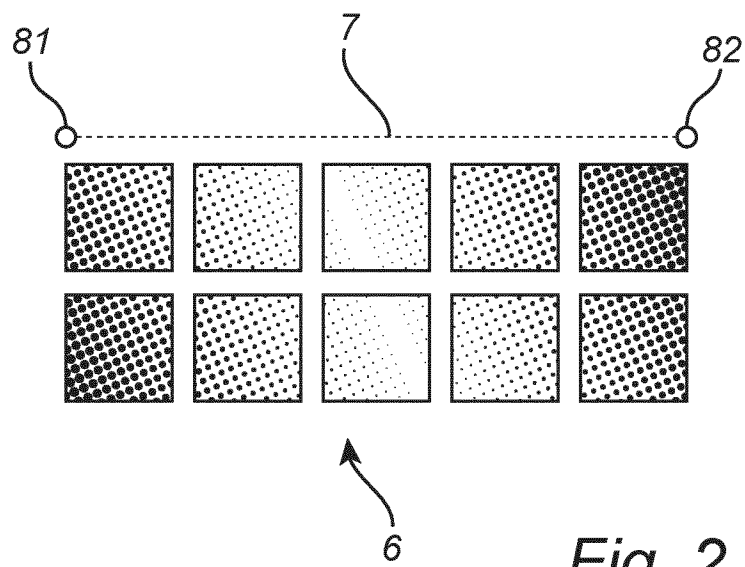


Fig. 2

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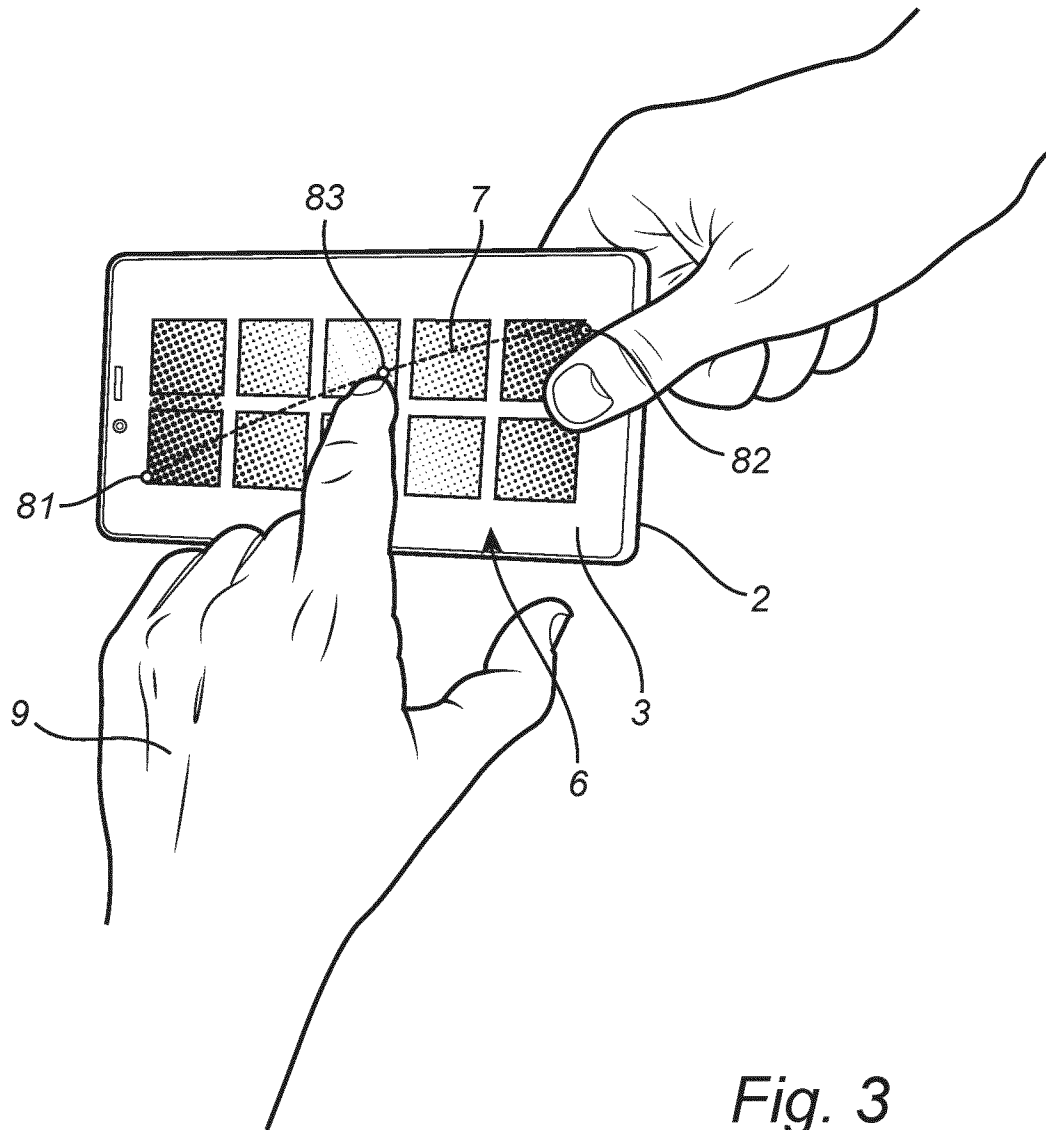


Fig. 3

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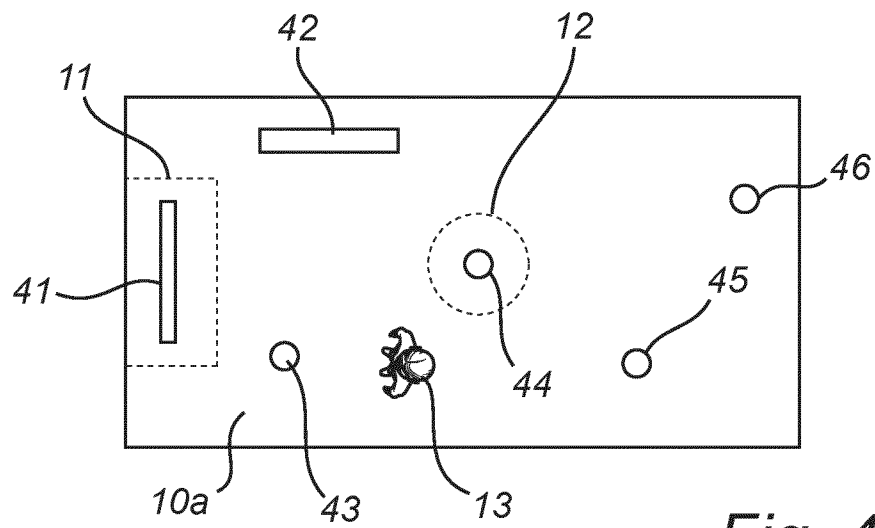


Fig. 4

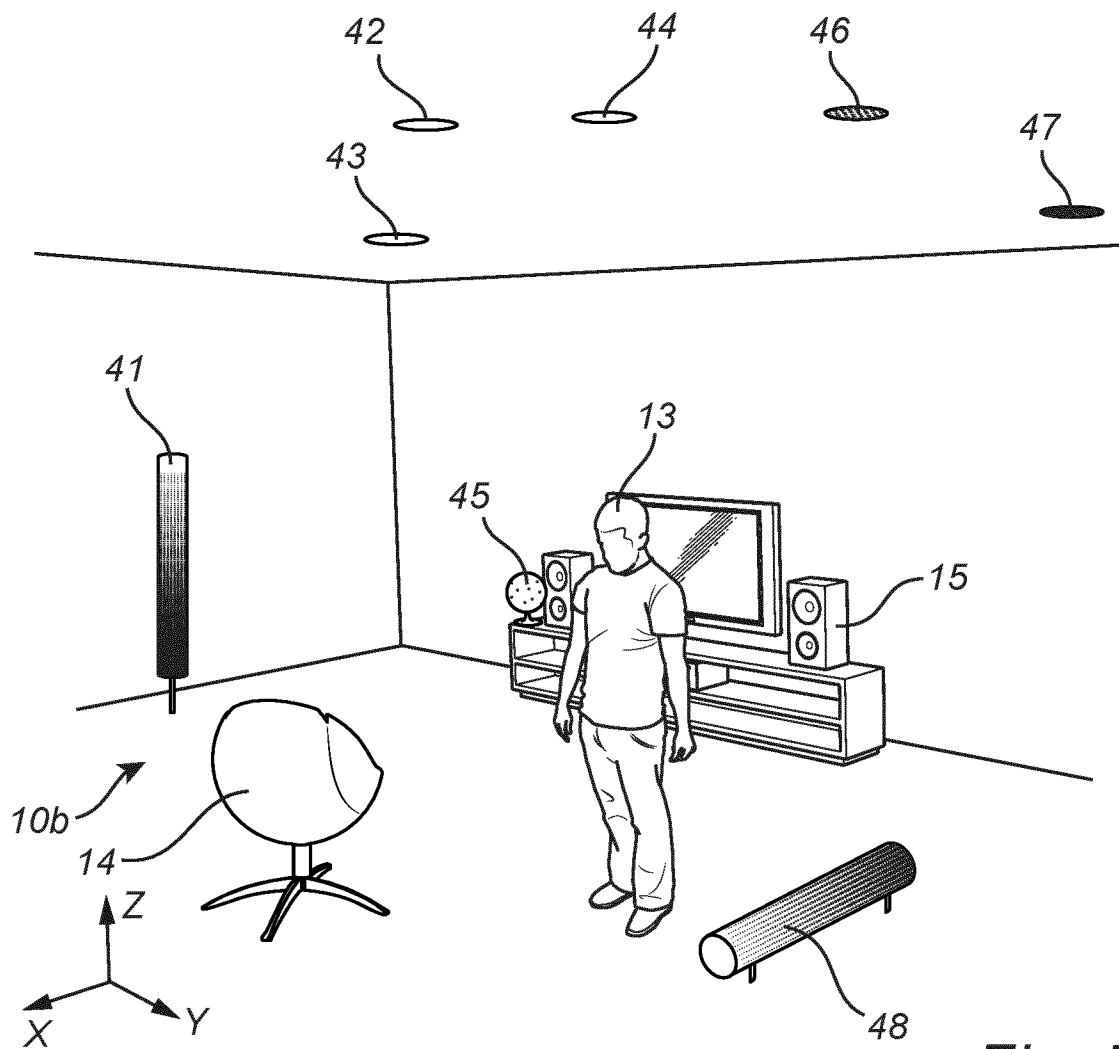
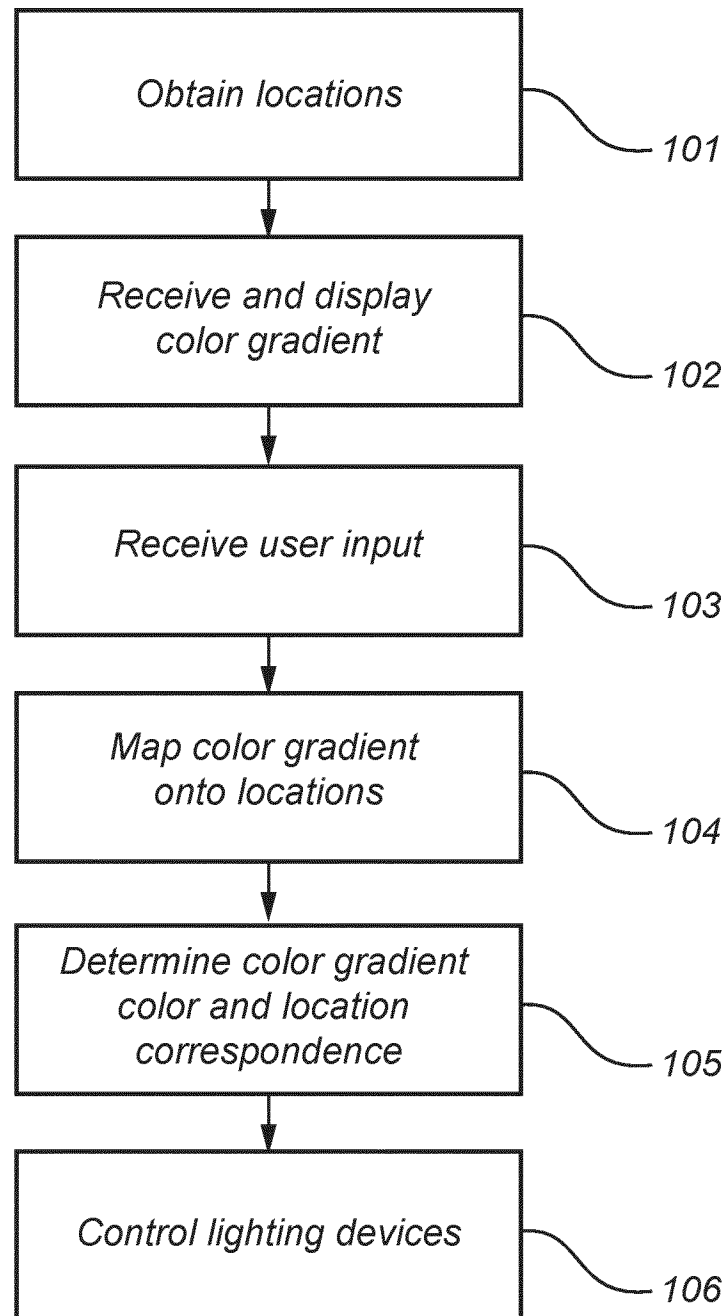
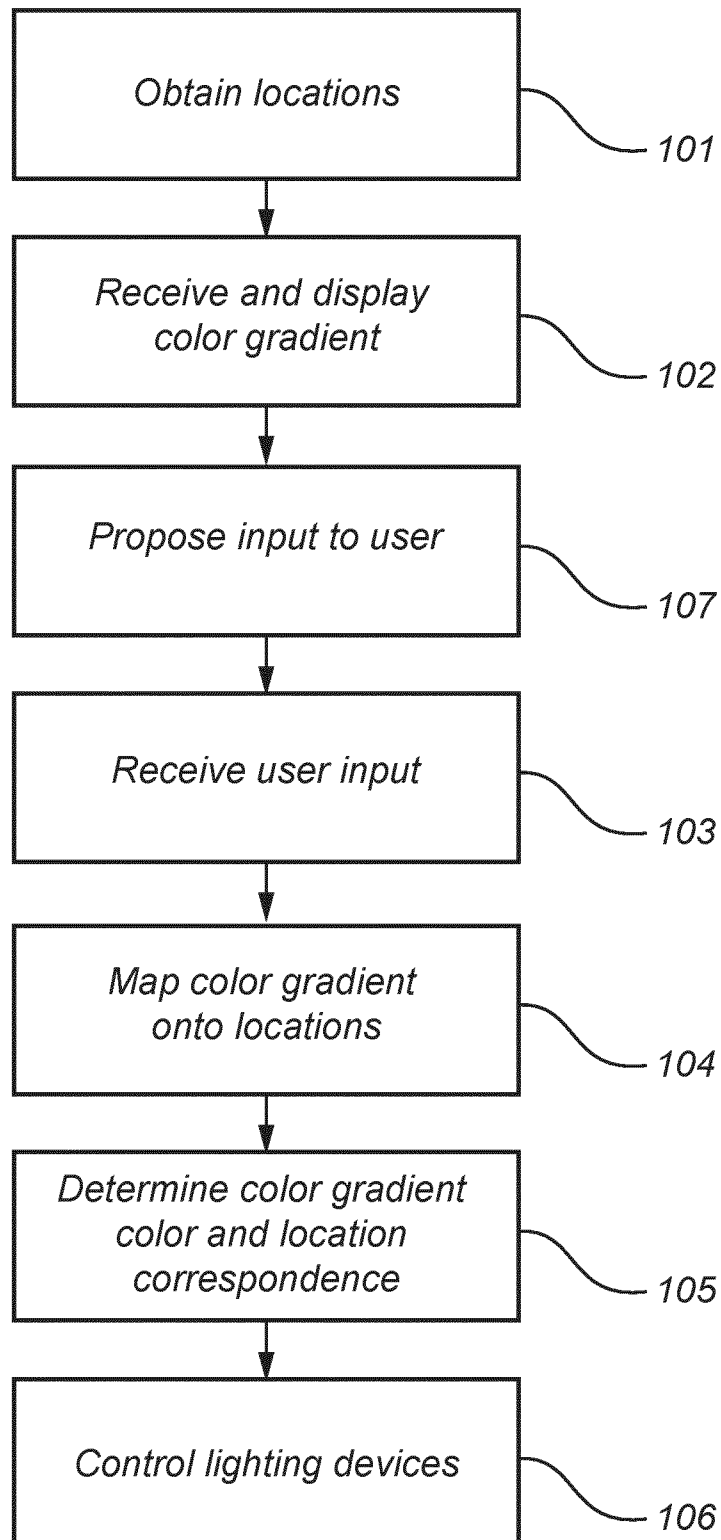


Fig. 5

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*Fig. 6*

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*Fig. 7*

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2023/067888

A. CLASSIFICATION OF SUBJECT MATTER INV. H05B47/175 H05B47/155 G06F3/04847 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 G06F		
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		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2022/043191 A1 (SIGNIFY HOLDING BV [NL]) 3 March 2022 (2022-03-03)	1-5, 7, 8, 10, 11, 13
Y	the whole document	6, 9, 12

X	WO 2021/069379 A1 (SIGNIFY HOLDING BV [NL]) 15 April 2021 (2021-04-15)	1-4, 10, 12
	the whole document	

Y	US 2019/116647 A1 (DEIXLER PETER [US] ET AL) 18 April 2019 (2019-04-18)	6, 9, 12
	the whole document	

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance;; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family	
Date of the actual completion of the international search	Date of mailing of the international search report	
1 August 2023	08/08/2023	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Ferla, Monica	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2023/067888

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