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(54) **MULTILED FAN CONTROLLER APARATUS**

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(57) **ABSTRACT**

The present invention discloses a multiLED fan controller apparatus, which is provided with various addressable RGB (Red-Green-Blue) LEDs. Each addressable RGB LED is built in with an IC (Integrated Circuit) control chip, which is equipped with a one-wire bus control function and can be connected in a series freely. The LED fans are only provided with windows of a single input and a single output that all the addressable RGB LEDs can be controlled. In addition, all the addressable RGB LEDs are controlled individually by a controller to result in various lighting effects through the change in output signals. The lighting can be adjusted remotely by the controller, or can be adjusted by a dedicated software program.

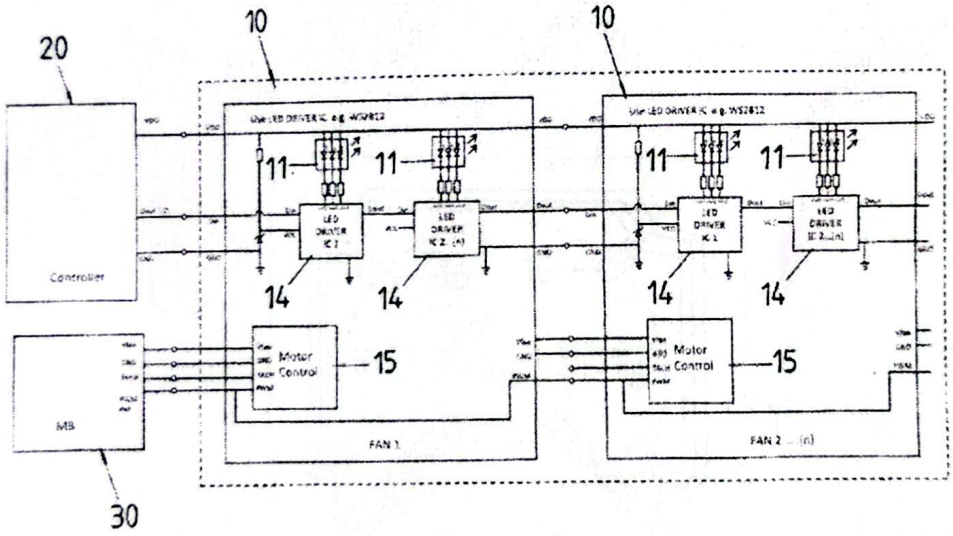


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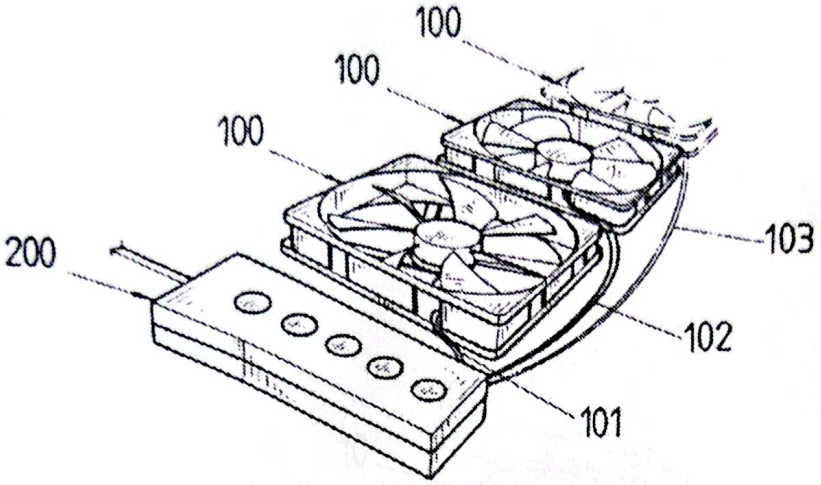


FIG.1 (PRIOR ART)

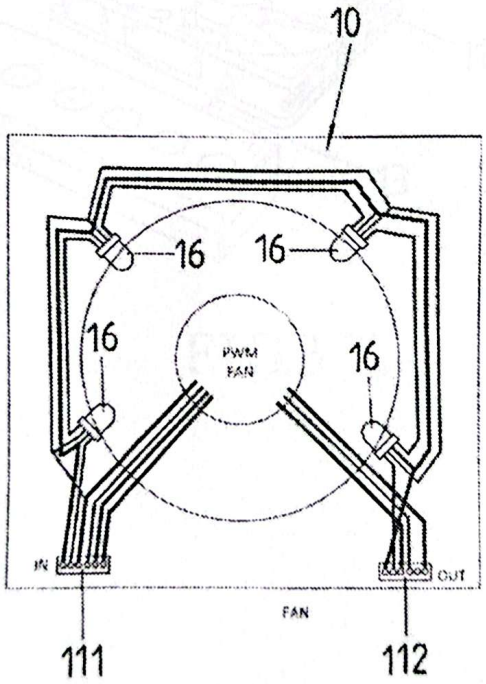


FIG.2

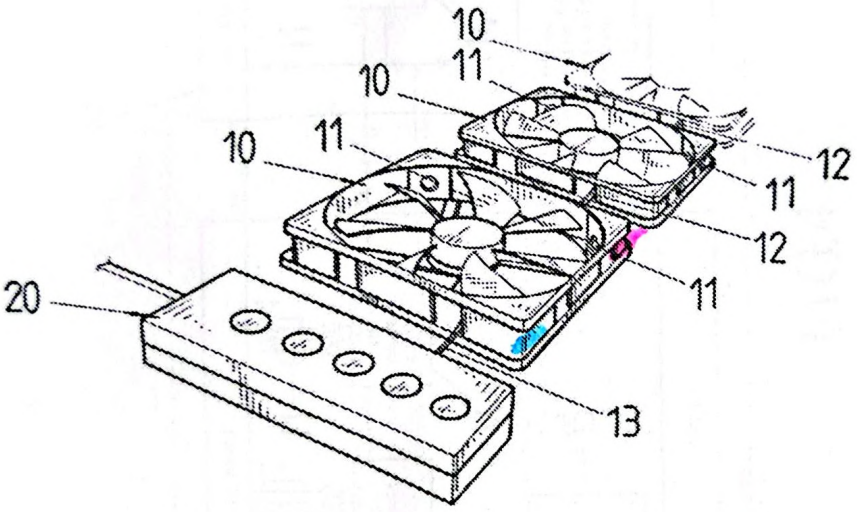


FIG.3

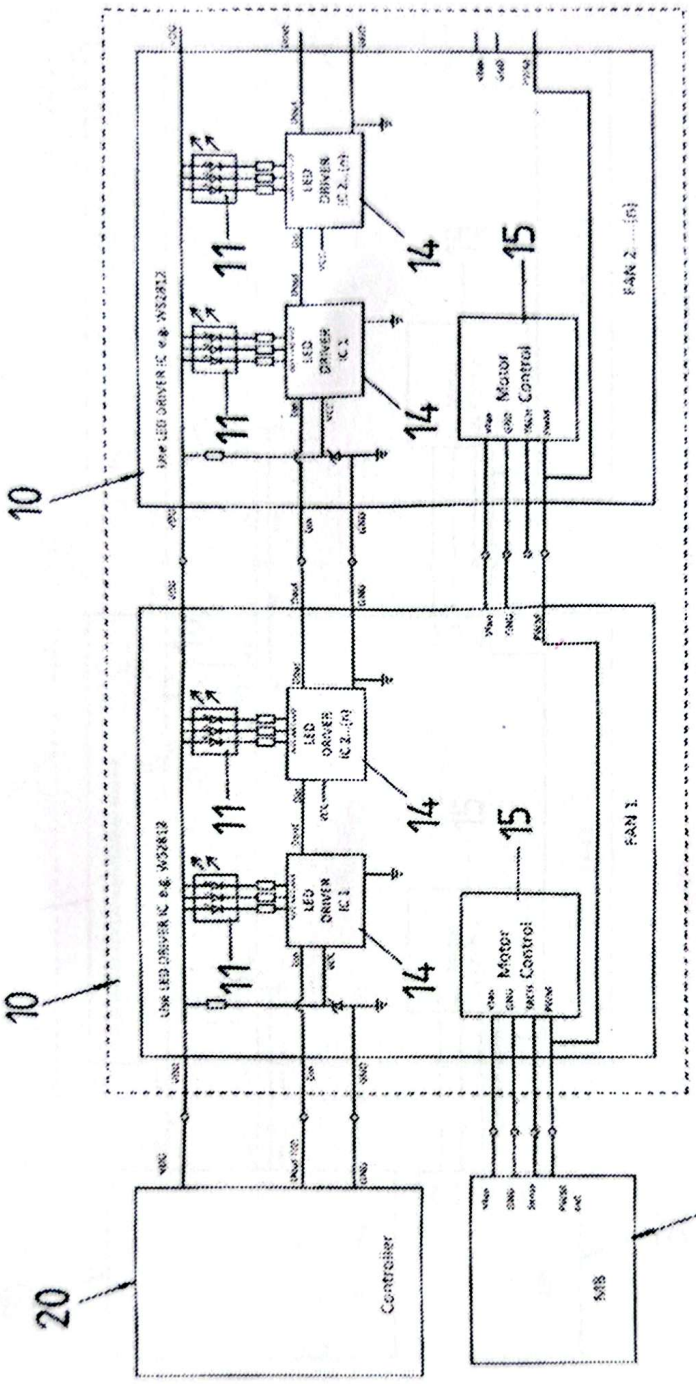

10
10
11
11
11
11
14
14
14
14
15
15
Motor Control
Motor Control
FAN 2
FAN 1
20
Controller
30
MB

FIG.4

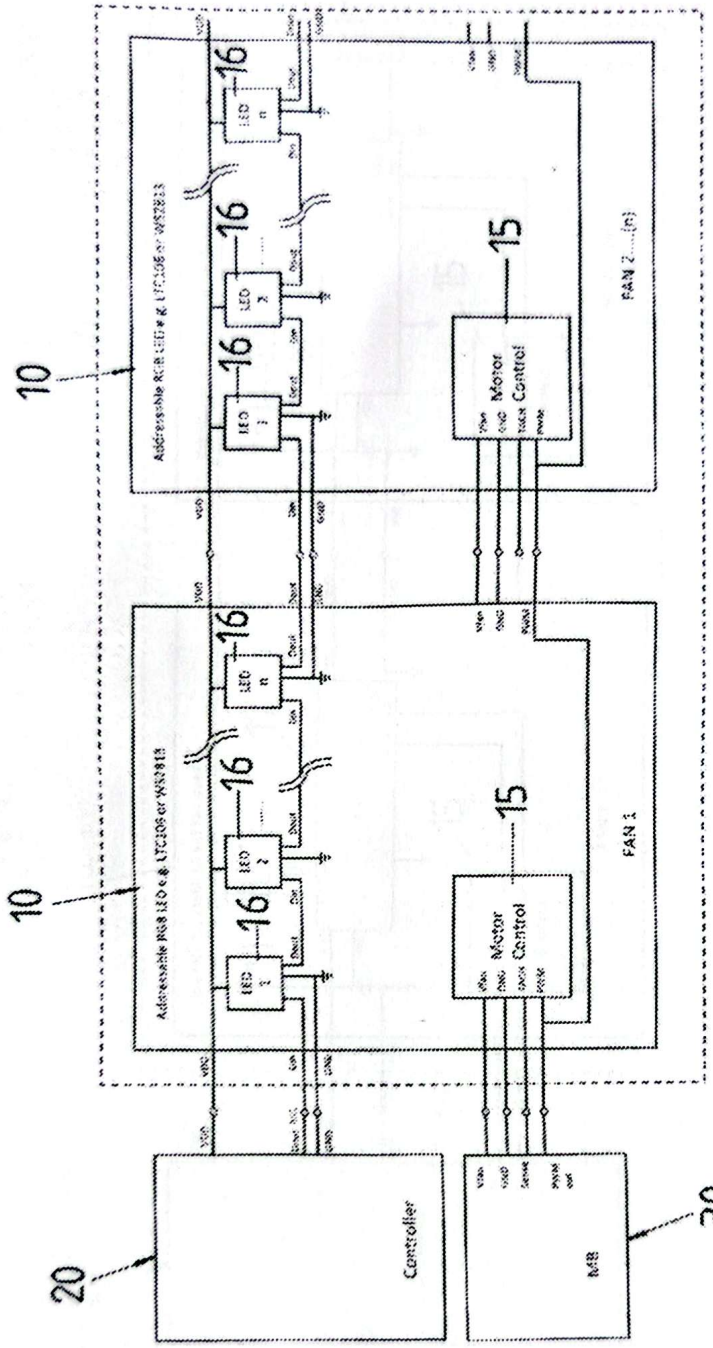

10
10
16
16
16
16
16
16
15
15
Motor Control
Motor Control
FAN 2
FAN 1
20
Controller
30
MB

FIG.5

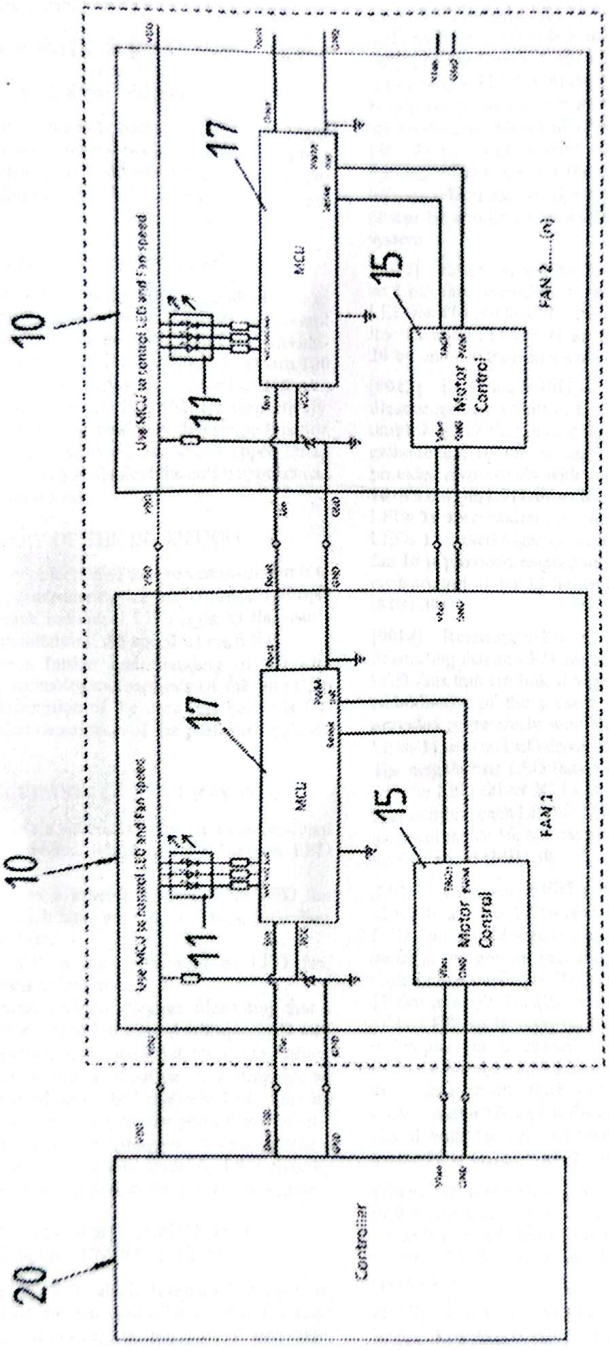

10
17
MCU
15
Motor Control
11
FAN 2
10
17
MCU
15
Motor Control
11
FAN 1
20
Controller

FIG.6

MULTILED FAN CONTROLLER APARATUS

BACKGROUND OF THE INVENTION

a) Field of the Invention

[0001] The present invention relates to an LED (Light Emitting Diode) fan control device, which connects multiple fans by wiring each one to a single controller device. By doing this, each individual LED light and the fan's rotational speed can be adjusted.

b) Description of the Prior Art

[0002] A conventional fan controller device allow user to control fan(s) by altering their rotational speeds and control the LEDs as a series, but only as a series and not individually. Referring to FIG. **1**, several conventional LED fans **100** have to be connected electrically with a controller **200** with an independent transmission line **101**, **102**, **103** respectively. The LED fans **100** are only provided with a single function of adjusting the lights as a series, and the wrapped transmission lines **101**, **102**, **103** will affect the entire appearance, which needs to be improved.

SUMMARY OF THE INVENTION

[0003] The primary objective of the present invention is to provide an LED fan controller device that connects multiple fans, and synchs each individual LED light to the user's preference, while maintaining the speed of each fan.

[0004] To enable a further understanding of the said objectives and the technological methods of the invention herein, the brief description of the drawings below is followed by the detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. **1** shows a schematic view of a conventional LED fan controller device, which connects several LED fans.

[0006] FIG. **2** shows a schematic view of an LED fan controller device, which links several LED fans, according to the present invention.

[0007] FIG. **3** shows a planar view of an LED fan, according to the present invention.

[0008] FIG. **4** shows a circuit diagram illustrating that a built-in LED driver IC is used to control multiple LED fans by linking them together, according to the present invention.

[0009] FIG. **5** shows a circuit diagram illustrating that an LED driver IC is used to control multiple LED fans by linking them together, according to the present invention.

[0010] FIG. **6** shows a circuit diagram illustrating that a microcontroller is used to control multiple LED fans by linking them together, according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] Referring to FIG. **2**, which shows a schematic view of the appearance of the fan controller device that links multiple LED fans, according to the present invention, wherein each LED fan **10** on the LED fan controller device of the present invention is provided with various addressable RGB (Red-Green-Blue) LEDs **16**. Each addressable RGB LED **16** is built in with an IC (Integrated Circuit) control chip which is equipped with a one-wire bus control function and can be connected in a series freely. The LED fan **10** is only provided with windows of a single input **111** and a single output **112** that all the addressable RGB LEDs **16** can be controlled. In addition, all the addressable RGB LEDs **16** are controlled individually by a controller **20** (as shown in FIG. **3**) to result in even more complex and expressive lighting effects through the change in output signals. The lighting effects can be adjusted remotely by the controller **20** or can be altered by a dedicated program in an operating system.

[0012] Referring to FIG. **3**, which shows a planar view of an LED fan, according to the present invention, wherein LED fans **10** are linked together using a single transmission line **12**, and LED fans **10** are linked together with controller **20** by another transmission line **13**.

[0013] Referring to FIG. **4**, which shows a circuit diagram illustrating that a built-in LED driver IC is used to control multiple LED fans linked together, According to the first embodiment of the present invention, LED fans **10** are provided respectively with various addressable RGB LEDs **16** of a built-in LED driver IC. The various addressable RGB LEDs **16** are connected in a series, and the addressable RGB LEDs **16** linked together with the controller **20**. Each LED fan **10** is provided respectively with a control motor **15** and each control motor **15** linked together with a mother board (MB) **30**.

[0014] Referring to FIG. **5**, which shows a circuit diagram illustrating that an LED driver IC is used to control multiple LED fans that are linked together. According to the second embodiment of the present invention, LED fans **10** are provided respectively with RGB LEDs **11**, and each RGB LEDs **11** uses an LED driver IC **14** to drive the color of light. The neighboring LED fans **10** are linked with one another, and the LED driver IC **14** is linked with the controller **20**. Furthermore, each LED fan **10** is provided respectively with a control motor **15**, and each control motor **15** is linked with mother board (MB) **30**.

[0015] Referring to FIG. **6**, which shows a circuit diagram illustrating that a microcontroller is used to control multiple LED fans linked together, According to the third embodiment of the present invention, LED fans **10** are provided with a microcontroller (MCU) **17**, and each microcontroller **17** drives an RGB LED **11** and adjusts the rotational speed of the LED fan **10** using the PWM (Pulse Width Modulation) technique. The neighboring microcontrollers **17** are linked with one another, and the microcontroller **17** is linked with the controller **20**. Each LED fan **10** is provided with a control motor **15**, and at the end of each control motor **15** is linked with the microcontroller **17**; whereas, the control motor **15** is linked with the controller **20**.

[0016] In conclusion, according to the above description of the embodiments of the present invention, an LED fan controller device can adjust each individual LED light on multiple LED fans while simultaneously control all fan speeds too.

[0017] It is of course to be understood that the embodiments described herein is merely illustrative of the principles of the invention and that a wide variety of modifications may be effected by people's skill level in the art without departing from the spirit and scope of the invention as set forth in the following claims.

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What is claimed is:

1. A multiLED fan controller apparatus, wherein a device can control each LED light on multiple fans and also the rotation speed of each LED fans by being linked together on the single device. The LED fans on the device use various addressable RGB LEDs, each addressable RGB LED is built in with an IC control chip which is equipped with a one-wire bus control function and is connected in a series freely. The LED fans are provided with windows of a single input and a single output to control all the addressable RGB LEDs. Each addressable RGB LED is controlled individually by a controller to result in more complex and expressive lighting effects through the change in output signals. The light effect changes are adjusted by the controller, the LED fans are linked with one another by a single transmission line, and the LED fan is linked with the controller by another transmission line.

2. The multiLED fan controller apparatus according to claim 1, wherein the multiple LED fans are provided respectively with various addressable RGB LEDs of a built-in LED driver IC. The various addressable RGB LEDs are connected in a series, and the addressable RGB LED is linked with the controller; Each LED fan is provided with a control motor and each control motor is linked with a mother board (MB).

3. The multiLED fan controller apparatus according to claim 1, wherein the multiple LED fans are provided with RGB LEDs, and each RGB LED uses an LED driver IC to drive the color of light. The neighboring LED fans are linked with one another, and the LED driver IC is linked with the controller; Furthermore, each LED fan is provided with a control motor, and each control motor is linked with a mother board (MB).

4. The multiLED fan controller apparatus according to claim 1, wherein the multiple LED fans are provided with a microcontroller (MCU). Each microcontroller drives an RGB LED, and adjusts the rotational speed of the LED fan using the PWM (Pulse Width Modulation) technique. The neighboring microcontrollers are linked with one another, and the microcontroller is linked with the controller. Each fan is provided with a control motor, and at the end of each control motor is linked with the microcontroller; whereas, the control motor is linked with the controller.

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