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(72) Inventor: **Lin, Yu Chuan**
His-Chih
Taipei Hsien (TW)

(74) Representative: **Manasse, Uwe et al**
Forrester & Boehmert
Pettenkoferstrasse 20-22
80336 München (DE)

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(71) Applicant: **SINBON Electronics Co., Ltd.**
His-Chih
Taipei Hsien 221 (TW)

(54) **Wireless remote control receiver**

(57) A wireless remote control receiver applicable for remote controlling an electronic device comprises a remote controller module and a receiver module. The remote controller module includes at least one input unit, a first processing unit and a radio frequency transmitter. The input unit outputs a signal to a first processing unit, and the first processing unit drives a radio frequency transmitter to transmit a radio frequency control signal based on the outputted signal, and a receiver module is

electrically coupled to an electronic device, and the receiver module includes at least one radio frequency receiver and a second processing unit, wherein the radio frequency receiver receives a radio frequency control signal, and a second processing unit converts the radio frequency control signals into an infrared control signal which is transmitted to an electronic device, so as to achieve the purpose of remote controlling the electronic device.

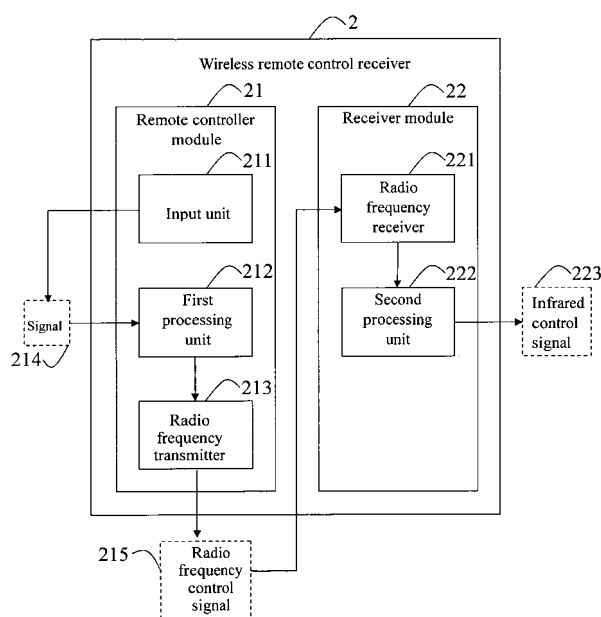


FIG. 2

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a wireless remote control receiver, and more particularly to a technology of transmitting a radio frequency control signal from a remote controller module to a receiver module, and converting the radio frequency control signal into an infrared control signal, and transmitting the infrared control signal to an electronic device.

BACKGROUND OF THE INVENTION

[0002] In the past, an electronic device such as a home appliance, an audio/video device or a consumer electronic product generally used many switches or buttons installed on the electronic device for its control, but such control is inconvenient, since users have to be near the electronic device to operate the electronic device.

[0003] At present, a wireless remote control receiver applicable for remote controlling an electronic device is well known in the art, and such conventional wireless remote control receiver comprises a remote controller module and a receiver module, wherein the remote controller module includes at least one keyboard (which is a press key set), a processing unit and an infrared transmitter circuit, so that users can input a signal by using the keyboard, and the processing unit drives an infrared transmitter circuit to transmit an infrared control signal based on the input signal, and the receiver module is electrically coupled to an electronic device and has at least one infrared receiving sensor for receiving the infrared control signal, and transmitting the infrared control signal to the electronic device through a cable, so as to achieve the purpose of remote controlling the electronic device.

[0004] Referring to FIG. 1 for a schematic view of the aforementioned wireless remote control receiver, the wireless remote control receiver comprises a remote controller module 11 and a receiver module 12, wherein the remote controller module 11 includes at least one first power supply circuit 111, a keyboard 112, a processing unit 113 and an infrared transmitter circuit 114. The first power supply circuit 111 provides a first supply power to the keyboard 112, the processing unit 113 and the infrared transmitter circuit 114, and users input a signal (not shown in the figure) by using the keyboard 112, and the processing unit 113 drives the infrared transmitter circuit 114 to transmit an infrared control signal (wireless) 115 to outside based on the input signal. The receiver module 12 is electrically coupled to an electronic device 13 and has at least one second power supply circuit 121 and an infrared receiving sensor 122. The second power supply circuit 121 provides a second supply power to the infrared receiving sensor 122. The infrared receiving sensor 122 is used to receive an infrared control signal (wireless) 115 and transmit the infrared control signal (cable) 123

to a processor 131 of the electronic device 13 through a cable, so as to achieve the purpose of remote controlling the electronic device 13.

[0005] The shortcoming of the foregoing conventional wireless remote control receiver resides in that the penetrating power of the infrared control signal transmitted by the remote controller module is poor, and thus the signal transmission may be blocked by obstacles easily and even not operable at all. Furthermore, the signal receiving angle and position of the receiver module are very limited, so that the remote controller module must be aligned precisely with the receiver module for good receptions, and the transmission distance of the infrared control signal is short, so that the transmission effect will be affected adversely if the receiver module is too far away from the remote controller module.

[0006] To overcome the shortcomings of the conventional wireless remote control receivers and satisfy the user requirements of the wireless remote control receiver, the inventor of the present invention based on years of experience in the related industry to conduct extensive researches and experiments, and finally developed a wireless remote control receiver in accordance with the present invention.

SUMMARY OF THE INVENTION

[0007] It is a primary objective of the present invention to provide a wireless remote control receiver, and more particularly to the technology that a remote controller module transmits a radio frequency control signal to a receiver module and the receiver module converts the radio frequency control signal into an infrared control signal, and transmits the infrared control signal to an electronic device, so as to satisfy the user requirements of the wireless remote control receiver and overcome the shortcomings of the conventional wireless remote control receivers. The present invention not only provides a powerful penetration that cannot be blocked by obstacles easily, but also has less limitation on the signal receiving angle and position. In addition, the present invention features the advantages of a long transmission distance and an excellent transmission effect.

[0008] To achieve the foregoing objective, the present invention provides a wireless remote control receiver comprising a remote controller module and a receiver module, wherein the remote controller module includes at least one input unit, a first processing unit and a radio frequency transmitter, and the input unit inputs a signal to the first processing unit, and the first processing unit drives the radio frequency transmitter to transmit a radio frequency control signal based on the input signal, and the receiver module is electrically coupled to an electronic device and includes at least one radio frequency receiver and a second processing unit, and the radio frequency receiver receives a radio frequency control signal, and a second processing unit converts the radio frequency control signal into an infrared control signal and

transmits the infrared control signal to the electronic device.

[0009] To make it easier for our examiner to understand the objective of the invention, its structure, innovative features, and performance, we use a preferred embodiment together with the attached drawings for the detailed description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

FIG. 1 is a schematic block diagram of a conventional wireless remote control receiver;

FIG. 2 is a schematic block diagram of a wireless remote control receiver in accordance with the present invention; and

FIG. 3 is a flow chart of a remote control method of a wireless remote control receiver in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] Understanding of the present invention will be facilitated by consideration of the following detailed description of a preferred embodiment of the present invention, taken in conjunction with the accompanying drawings, in which like reference numerals refer to like parts.

[0012] Referring to FIG. 2 for a schematic block diagram of a wireless remote control receiver in accordance with the present invention, the wireless remote control receiver is applicable for remote controlling an electronic device. In FIG. 2, the wireless remote control receiver 2 comprises a remote controller module 21 and a receiver module 22, wherein the remote controller module 21 includes at least one input unit 211, a first processing unit 212 and a radio frequency transmitter 213. The input unit 211 outputs a signal 214 to the first processing unit 212, and the first processing unit 212 drives the radio frequency transmitter 213 to transmit a radio frequency control signal 215 based on the signal 214. The receiver module 22 is electrically coupled to the electronic device and includes at least one radio frequency receiver 221 and a second processing unit 222. The radio frequency receiver 221 receives a radio frequency control signal 215, and the second processing unit 222 converts the radio frequency control signal 215 into an infrared control signal 223 and transmits the infrared control signal 223 to the electronic device, so as to achieve the effect of remote controlling the electronic device.

[0013] In general, the electronic device is a home appliance, an audio/video device or a consumer electronic product, and the remote controller module 21 is a remote controller or a remote control device capable of transmitting wireless signals, and the input unit 211 is a keyboard, and the first processing unit 212 is a central processing unit or a keyboard decoder, and the radio frequency

transmitter 213 is a radio frequency (RF) transmitter circuit, and the signal 214 may be a keyboard scan code, and the radio frequency control signal 215 is a radio frequency (RF) signal, and the receiver module 22 is installed in an external connecting box and electrically coupled to the electronic device by a connector or a cable, and the radio frequency receiver 221 is a radio frequency (RF) receiver circuit, and the second processing unit 222 is a central processing unit or a converter. In addition, the remote controller module 21 further includes a first power supply circuit for providing a first supply power to the input unit 211, the first processing unit 212 and the radio frequency transmitter 213, and the receiver module 22 further includes a second power supply circuit for providing a second supply power to the radio frequency receiver 221 and the second processing unit 222. The second supply power provided by the second power supply circuit is generally supplied by the electronic device.

[0014] Referring to FIG. 3 for a flow chart of a wireless remote control receiver 2 as depicted in FIG. 2, the wireless remote control receiver 2 is applicable for remote controlling an electronic device, and the method of the present invention comprises the steps of:

Step (S31): inputting a signal 214 by using an input unit 211 of a remote controller module 21 to a first processing unit 212;

Step (S32): driving a radio frequency transmitter 213 by the first processing unit 212 to transmit a radio frequency control signal 215 based on the input signal 214;

Step (S33): receiving the radio frequency control signal 215 by a radio frequency receiver 221 of a receiver module 22; and

Step (S34): converting the radio frequency control signal 215 into an infrared control signal 223 by the second processing unit 222 and transmitting the infrared control signal 223 to the electronic device by the second processing unit 222, so as to achieve the purpose of remote controlling the electronic device.

[0015] While the invention has been described by way of example and in terms of preferred embodiments, it is to be understood that the invention is not limited thereto. To the contrary, it is intended to cover various modifications and similar arrangements and procedures, and the scope of the appended claims therefore should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements and procedures.

Claims

1. A wireless remote control receiver, applicable for remote controlling an electronic device, comprising:

a remote controller module, having at least one

- input unit, a first processing unit and a radio frequency transmitter, wherein the input unit outputs a input signal to the first processing unit, and the first processing unit drives the radio frequency transmitter to transmit a radio frequency control signal based on the signal; and
 a receiver module, electrically coupled to the electronic device, and having at least one radio frequency receiver and a second processing unit, wherein the radio frequency receiver receives the radio frequency control signal, and the second processing unit converts the radio frequency control signal into an infrared control signal and transmits the infrared control signal to the electronic device.
2. The wireless remote control receiver of claim 1, wherein the electronic device is a home appliance, an audio/video device or a consumer electronic product.
 3. The wireless remote control receiver of claim 1, wherein the remote controller module is a remote controller or a remote control device capable of transmitting wireless signals.
 4. The wireless remote control receiver of claim 1, wherein the input unit is a keyboard.
 5. The wireless remote control receiver of claim 1, wherein the first processing unit is a central processing unit or a keyboard decoder.
 6. The wireless remote control receiver of claim 1, wherein the radio frequency transmitter is a radio frequency (RF) transmitter circuit.
 7. The wireless remote control receiver of claim 1, wherein the input signal is a keyboard scan code.
 8. The wireless remote control receiver of claim 1, wherein the radio frequency control signal is a radio frequency (RF) signal.
 9. The wireless remote control receiver of claim 1, wherein the receiver module is installed in an external connecting box and electrically coupled to the electronic device by a connector or a cable.
 10. The wireless remote control receiver of claim 1, wherein the radio frequency receiver is a radio frequency (RF) receiver circuit.
 11. The wireless remote control receiver of claim 1, wherein the second processing unit is a central processing unit or a converter.
 12. The wireless remote control receiver of claim 1, wherein the remote controller module further includes a first power supply circuit for providing a first supply power to the input unit, the first processing unit and the radio frequency transmitter.
 13. The wireless remote control receiver of claim 1, wherein the receiver module further includes a second power supply circuit for providing a second supply power to the radio frequency receiver and the second processing unit.
 14. The wireless remote control receiver of claim 13, wherein the second supply power provided by the second power supply circuit is supplied by the electronic device.

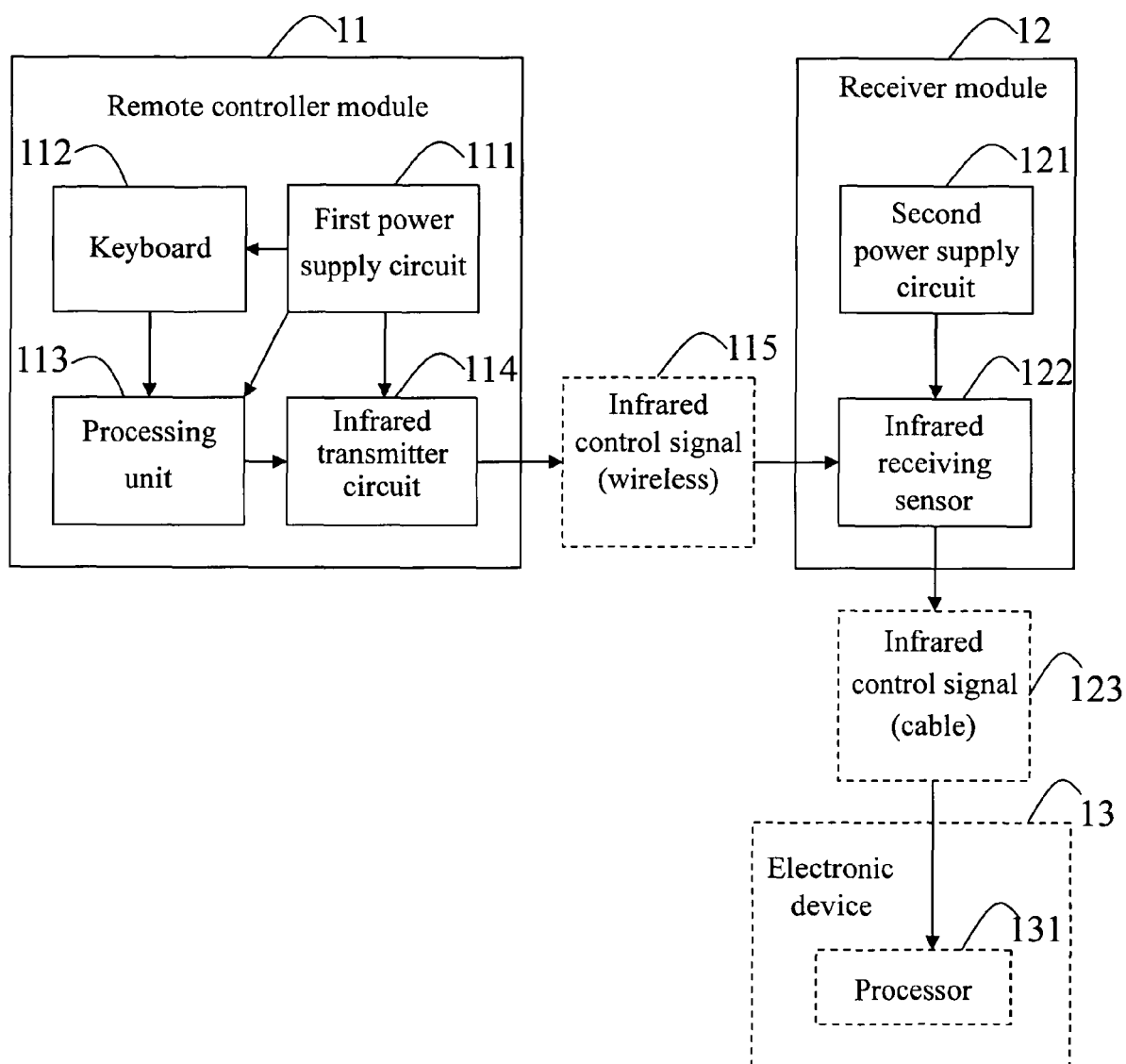


FIG. 1

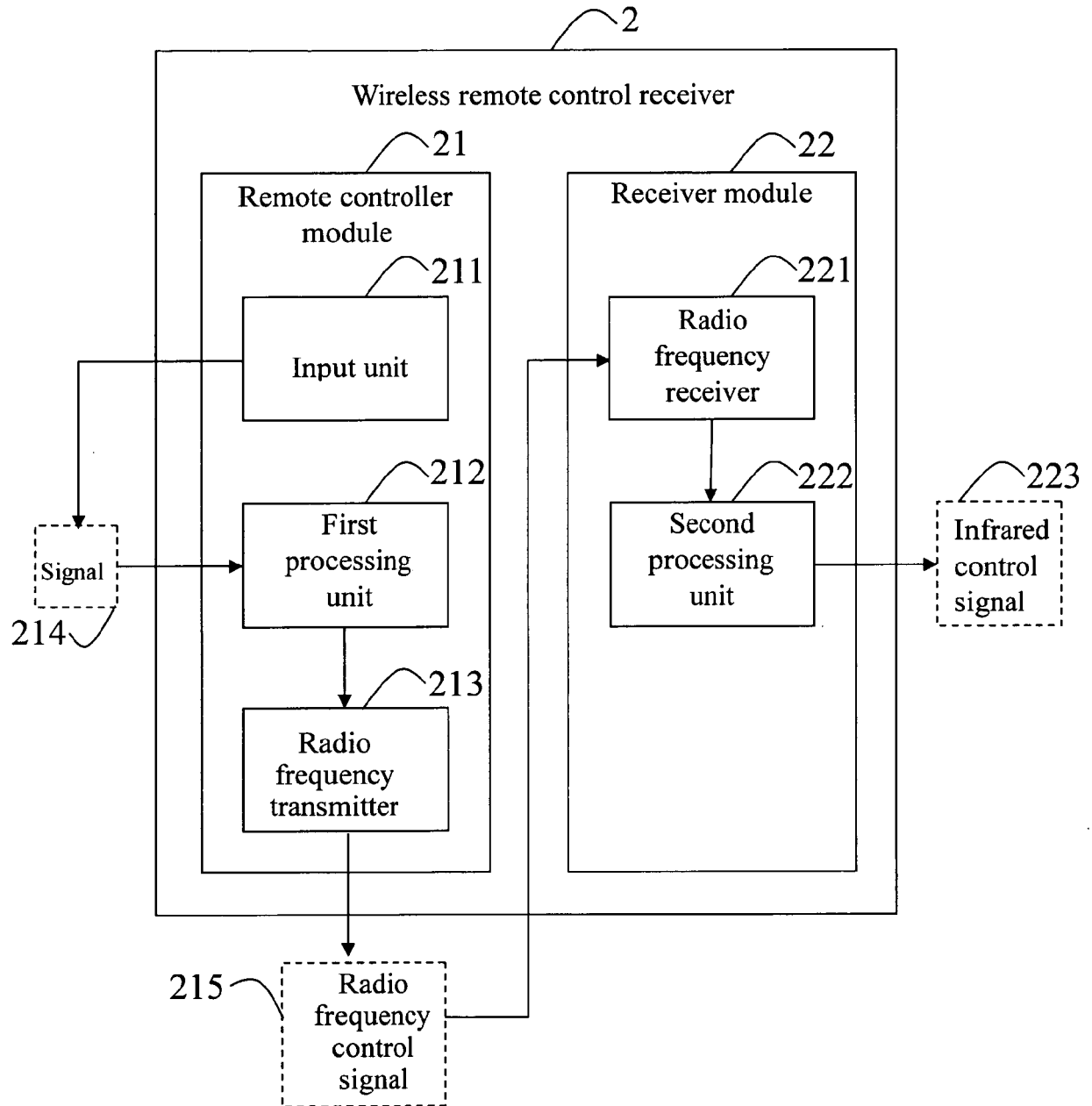
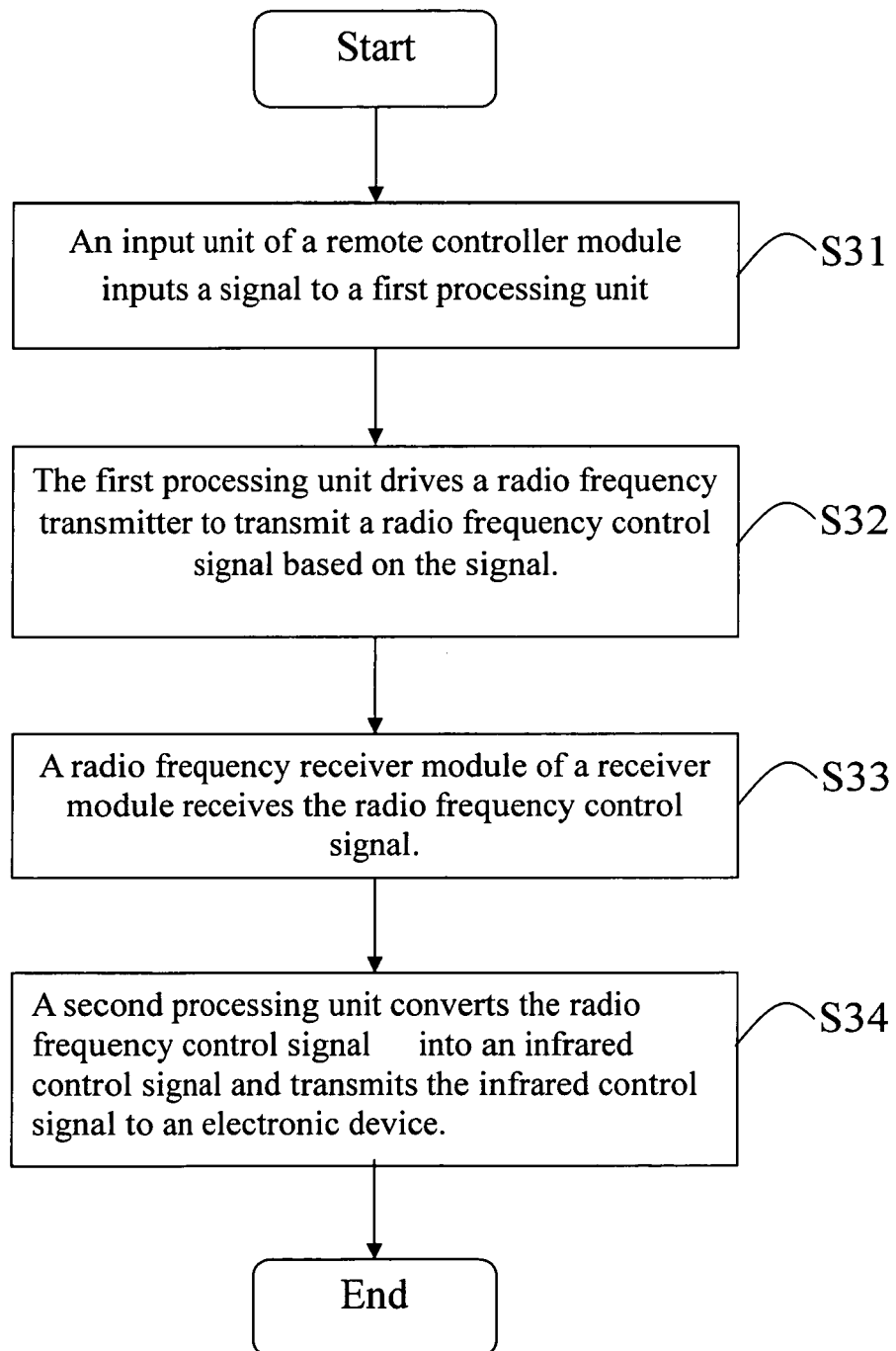


FIG. 2

**FIG. 3**



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 2346

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2006/033636 A1 (KWONG WAH Y [US] ET AL) 16 February 2006 (2006-02-16) * paragraph [0012] - paragraph [0029] * -----	1-14	INV. G08C17/02 G08C23/04
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X	WO 03/032272 A (KONINKL PHILIPS ELECTRONICS NV [NL]) 17 April 2003 (2003-04-17) * page 5, line 27 - page 6, line 28 * -----	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			G08C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 September 2007	Examiner Pham, Phong
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 01 2346

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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27-09-2007

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