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(54) **METHOD FOR PROCESSING KEY VALUE INFORMATION OF REMOTE CONTROL, CONTROL DEVICE AND REMOTE CONTROL**

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G08C 17/02 (2006.01)
G08C 23/04 (2006.01)

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(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,081,534 A * 1/1992 Geiger H04N 5/765 340/12.23
6,127,941 A * 10/2000 Van Ryzin G08C 17/02 340/12.53
(Continued)

FOREIGN PATENT DOCUMENTS

CN 101183487 A 5/2008
CN 101493988 A 7/2009
(Continued)

OTHER PUBLICATIONS

Partial English Translation and Abstract of Chinese Patent Application No. CN101727735, Jun. 20, 2016, 15 pages.
(Continued)

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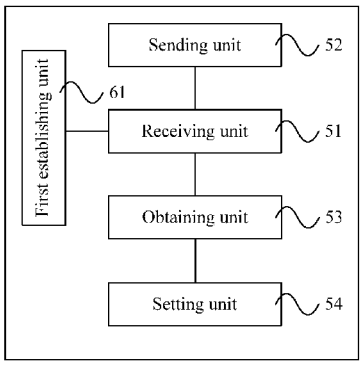
(57) **ABSTRACT**

A method for processing key value information of a remote control, a control device, and a remote control are provided. The present application can avoid a problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls. By using the technical solution provided by this embodiment of the present invention, it may be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

25 Claims, 6 Drawing Sheets



(58) **Field of Classification Search**

CPC G08C 2201/30; G08C 23/04; G08C 2201/41; G08C 2201/50; G08C 17/00; G08C 2201/33; H04N 2005/4435; H04N 21/42226; H04N 21/482; H04N 5/4403; H04N 2005/4439; H04N 21/4126; H04N 21/4222; H04N 21/42225; H04B 1/202

USPC 340/12.23, 12.28, 12.53, 12.22, 12.5, 340/12.24, 12.25, 12.52, 12.54, 12.55, 340/13.24, 4.3, 4.37

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,525,473	B2 *	4/2009	Chu	G08C 17/00 340/12.28
7,535,465	B2 *	5/2009	Morse	G11B 27/105 345/204
8,176,514	B2 *	5/2012	Yi	H04N 5/44543 725/41
8,348,145	B2 *	1/2013	Pratt	H04L 12/2814 235/375
8,627,364	B2 *	1/2014	Song	H04W 4/06 725/109
8,797,151	B2 *	8/2014	Ohashi	G08C 17/02 340/12.22
8,890,664	B2 *	11/2014	Edwards	G08C 19/28 340/12.22
9,024,733	B2 *	5/2015	Wouters	G08C 19/28 340/10.5
2004/0070491	A1 *	4/2004	Huang	G08C 17/02 340/10.5
2005/0157217	A1 *	7/2005	Hendricks	H04H 20/06 348/734
2008/0174468	A1 *	7/2008	Drimusz	G08C 19/28 341/176
2009/0070696	A1 *	3/2009	Belz	G06F 3/0489 715/771
2009/0079594	A1 *	3/2009	Arling	H04N 5/44 341/22
2010/0053468	A1 *	3/2010	Harvill	H04N 5/4403 348/734
2010/0060506	A1 *	3/2010	Maier	G08C 17/02 341/176
2010/0162331	A1 *	6/2010	Belz	H04L 12/2803 725/106
2010/0208145	A1 *	8/2010	VanDuyn	G08C 19/28 348/734
2011/0055865	A1 *	3/2011	Jung	H04N 5/4403 725/38
2011/0109444	A1 *	5/2011	Edwards	G08C 19/28 340/12.23
2011/0157478	A1 *	6/2011	McRae	H04N 5/4403 348/734
2011/0164189	A1 *	7/2011	Asayama	G08C 17/00 348/734
2011/0312272	A1 *	12/2011	Goto	G08C 17/02 455/41.1
2012/0021684	A1 *	1/2012	Schultz	H04B 5/0043 455/41.1
2012/0280802	A1 *	11/2012	Yoshida	G08C 17/02 340/12.5
2015/0371536	A1 *	12/2015	Skokna	H04N 21/4586 398/106

FOREIGN PATENT DOCUMENTS

CN	101727735	A	6/2010
CN	101751767	A	6/2010
CN	102104710	A	6/2011
CN	102610084	A	7/2012
CN	102665124	A	9/2012
EP	0354459	B1	3/1994
JP	11252404	A	9/1999

OTHER PUBLICATIONS

Foreign Communication From a Counterpart Application, Chinese Application No. 201210470691.2, Chinese Office Action dated May 5, 2016, 9 pages.

Partial English Translation and Abstract of Chinese Patent Application No. CN101183487A, May 27, 2015, 3 pages.

Partial English Translation and Abstract of Chinese Patent Application No. CN102610084A, May 27, 2015, 2 pages.

Foreign Communication From a Counterpart Application, PCT Application No. PCT/CN2013/087496, English Translation of International Search Report dated Feb. 27, 2014, 3 pages.

Foreign Communication From a Counterpart Application, PCT Application No. PCT/CN2013/087496, English Translation of Written Opinion dated Feb. 27, 2014, 19 pages.

Foreign Communication From a Counterpart Application, European Application No. 13856913.2, Extended European Search Report dated Dec. 15, 2015, 7 pages.

* cited by examiner

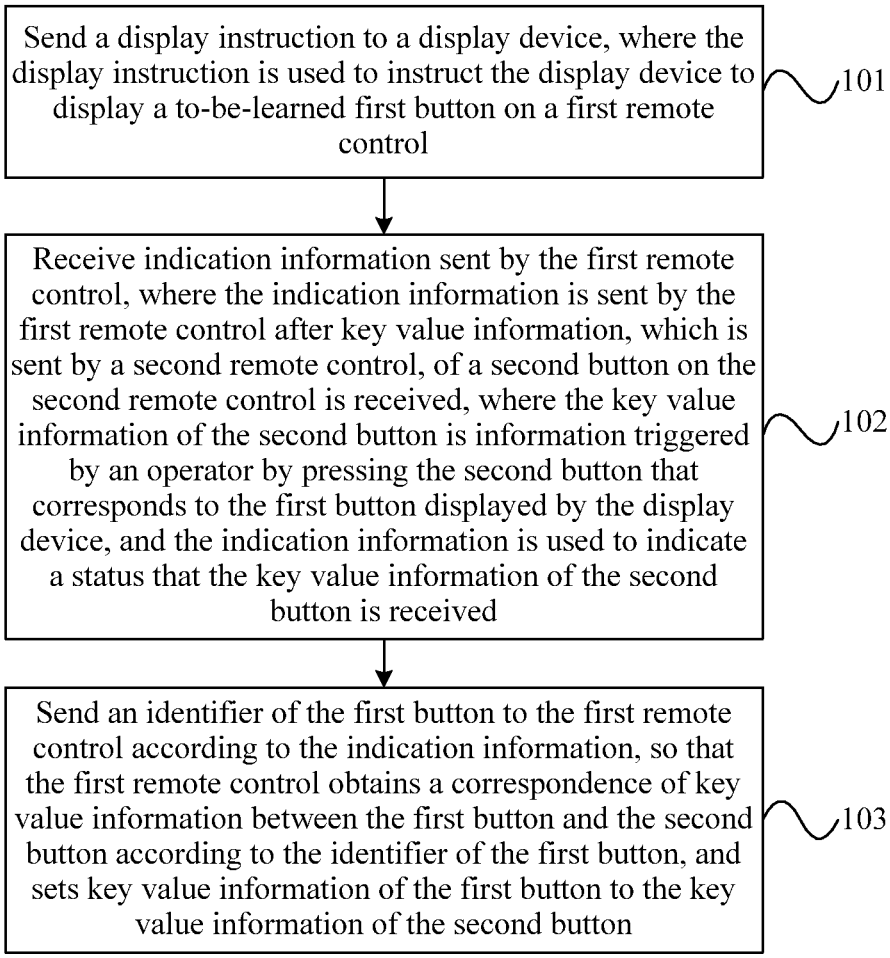

Send a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control
101
Receive indication information sent by the first remote control, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received
102
Send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button
103

FIG. 1

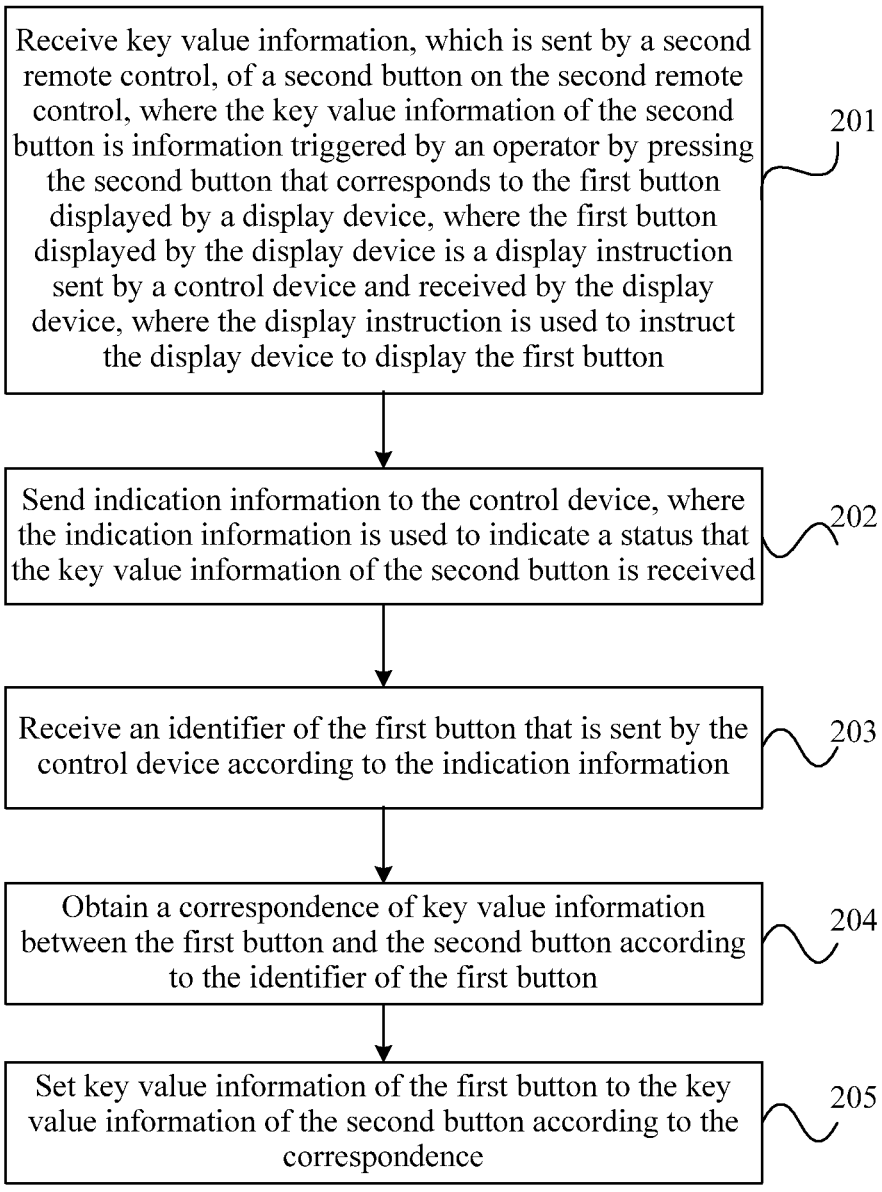

Receive key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button
201
Send indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received
202
Receive an identifier of the first button that is sent by the control device according to the indication information
203
Obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button
204
Set key value information of the first button to the key value information of the second button according to the correspondence
205

FIG. 2

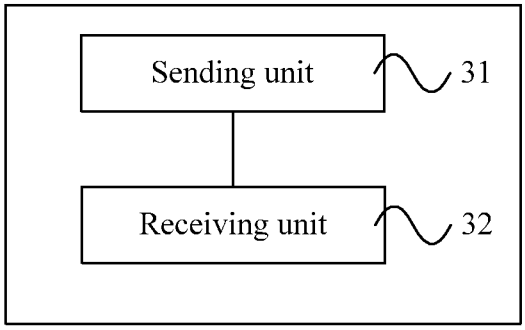

Sending unit
31
Receiving unit
32

FIG. 3

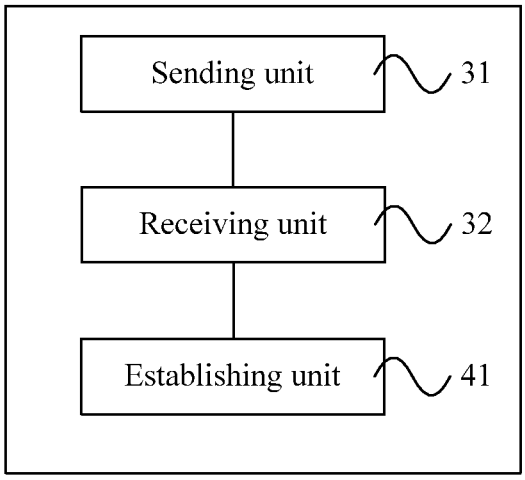

Sending unit
31
Receiving unit
32
Establishing unit
41

FIG. 4

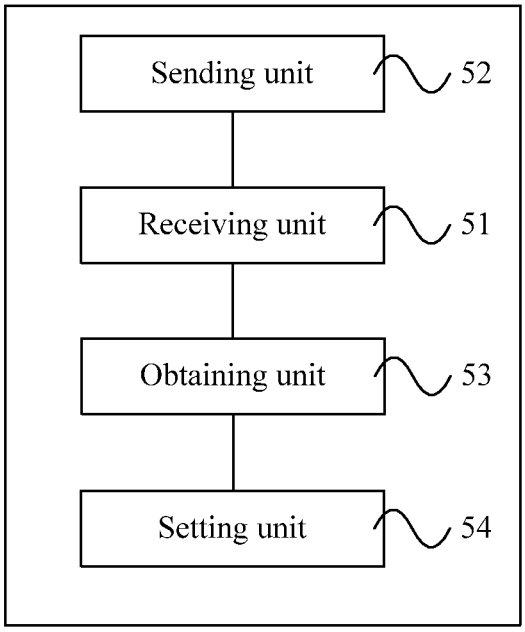

Sending unit
52
Receiving unit
51
Obtaining unit
53
Setting unit
54

FIG. 5

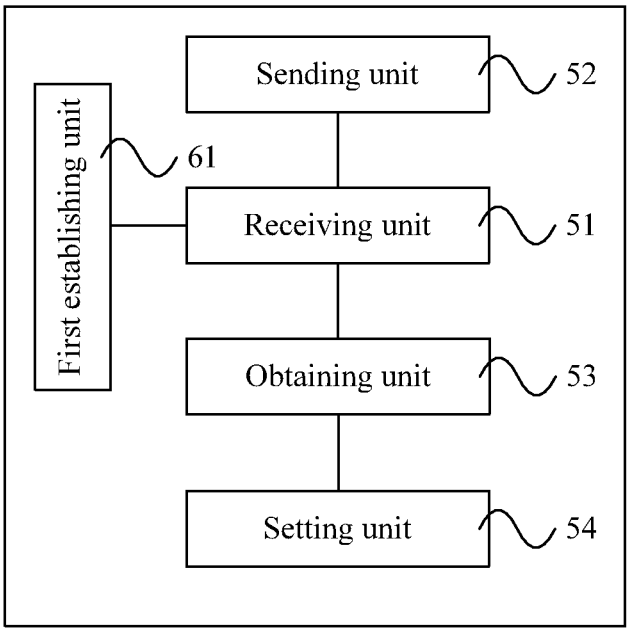

Sending unit
52
First establishing unit
61
Receiving unit
51
Obtaining unit
53
Setting unit
54

FIG. 6

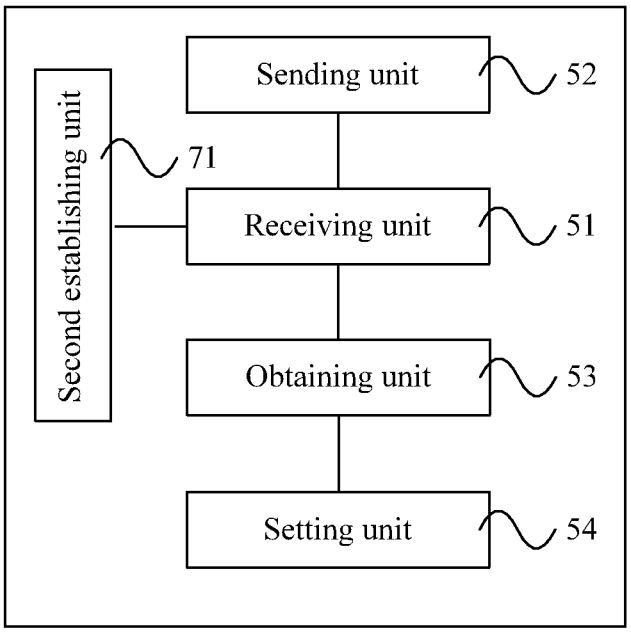

Sending unit
52
Second establishing unit
71
Receiving unit
51
Obtaining unit
53
Setting unit
54

FIG. 7

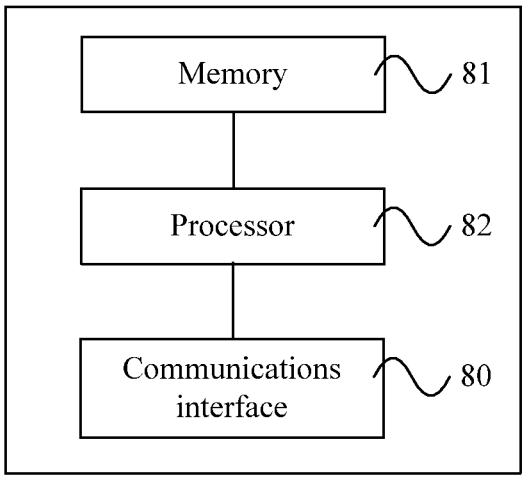

Memory
81
Processor
82
Communications interface
80

FIG. 8

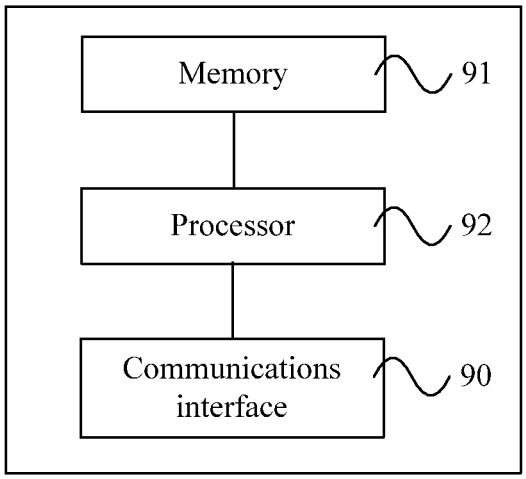


FIG. 9

METHOD FOR PROCESSING KEY VALUE INFORMATION OF REMOTE CONTROL, CONTROL DEVICE AND REMOTE CONTROL

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of International Application PCT/CN2013/087496, filed on Nov. 20, 2013, which claims priority to Chinese Patent Application No. 201210470691.2, filed on Nov. 20, 2012, both of which are incorporated herein by reference in their entireties.

TECHNICAL FIELD

The present application relates to communications technologies, and in particular, to a method for processing key value information of a remote control, a control device, and a remote control.

BACKGROUND

With the rapid development of remote control technologies, as important input devices for electronic devices, remote controls become quite popular. There may be a large variety of electronic devices, for example, television sets, set-top boxes, and air conditioners, in one location; and accordingly, there are also many types of remote controls for these electronic devices. This causes many inconveniences to operators. For the foregoing problem, a solution is proposed in the prior art, in which one remote control may obtain, according to operations of an operator on the one remote control and corresponding buttons on another remote control, a correspondence of key value information between buttons on the one remote control and buttons on the another remote control, so as to implement that the one remote control can control two or more electronic devices. For example, an operator may separately press corresponding buttons on remote control A and remote control B, for example, the operator presses button C on remote control A, and the operator presses button D on remote control B; then, remote control A may receive key value information of button D sent by remote control B. Then, remote control A may set key value information of button D to the key value information of button C according to a correspondence of key value information between button C and button D, so that the operator can implement information input to an electronic device corresponding to remote control B by performing an operation on button C on remote control A rather than performing an operation on button D on remote control B.

However, because operations need to be simultaneously performed on two remote controls, decreases in operation efficiency and operation reliability are caused.

SUMMARY

According to multiple aspects of the present application, a method for processing key value information of a remote control, a control device, and a remote control are provided, so as to improve operation efficiency and operation reliability.

According to one aspect of the present application, a method for processing key value information of a remote control is provided, including sending a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; receiving indication information sent by the first remote control, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received; and sending an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button.

With reference to the foregoing aspect, an implementation manner is further provided, where the indication information is acknowledgement information used to indicate that the key value information of the second button has been received; and the method further includes establishing, by the first remote control, the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is the key value information of the second button; and the method further includes establishing the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information; and sending the correspondence to the first remote control, where the correspondence includes the identifier of the first button and the key value information of the second button, so that the first remote control obtains the correspondence according to the identifier of the first button; or establishing, by the first remote control, the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving, by the first remote control, the key value information of the second button sent by the second remote control includes receiving, by the first remote control in a wired or wireless manner, the key value information of the second button sent by the second remote control.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving indication information sent by the first remote control includes receiving, in a wired or wireless manner, the indication information sent by the first remote control.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the sending an identifier of the first button to the first remote control according to the indication information includes sending the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

According to another aspect of the present application, a method for processing key value information of a remote

control is provided, including receiving key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button; sending indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received; receiving an identifier of the first button that is sent by the control device according to the indication information; obtaining a correspondence of key value information between the first button and the second button according to the identifier of the first button; and setting key value information of the first button to the key value information of the second button according to the correspondence.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is acknowledgement information used to indicate that the key value information of the second button has been received; and the method further includes establishing the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is the key value information of the second button; and the method further includes establishing the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button; or receiving the correspondence, which is sent by the control device, of key value information between the first button and the second button, where the correspondence includes the identifier of the first button and the key value information of the second button, and the correspondence is established by the control device according to the identifier of the first button and the indication information.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving key value information, which is sent by a second remote control, of a second button on the second remote control includes receiving, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

With reference to the foregoing aspect and any possible implementation manner, an implementation manner is further provided, where the sending the indication information to the control device includes sending the indication information to the control device in a wired or wireless manner.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving an identifier of the first button that is sent by the control device according to the indication information includes receiving, in a wired or wireless manner, the identifier of the first button that is sent by the control device according to the indication information.

According to another aspect of the present application, a control device is provided, including a sending unit configured to send a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; and a receiving unit configured to receive indication information sent by the first remote control, and transmit the indication information to the sending unit, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received; where the sending unit is further configured to send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is acknowledgement information used to indicate that the key value information of the second button has been received.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is the key value information of the second button; the control device further includes an establishing unit configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information, and transmit the correspondence to the sending unit; and the sending unit is further configured to send the correspondence to the first remote control, where the correspondence includes the identifier of the first button and the key value information of the second button, so that the first remote control obtains the correspondence according to the identifier of the first button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving unit is configured to receive, in a wired or wireless manner, the indication information sent by the first remote control.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the sending unit is configured to send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

According to another aspect of the present application, a remote control is provided, including a receiving unit configured to receive key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button; a sending unit configured to send indication information to the control device, where the indication information is used to indicate a status that the

key value information of the second button is received by the receiving unit; where the receiving unit is further configured to receive an identifier of the first button that is sent by the control device according to the indication information, and transmit the identifier of the first button to the obtaining unit; the obtaining unit configured to obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button, and transmit the correspondence to a setting unit; and the setting unit configured to set key value information of the first button to the key value information of the second button according to the correspondence.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is acknowledgement information used to indicate that the key value information of the second button has been received; and the remote control further includes a first establishing unit configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is the key value information of the second button; and the remote control further includes a second establishing unit configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button; or the receiving unit is further configured to receive the correspondence, which is sent by the control device, of key value information between the first button and the second button, where the correspondence includes the identifier of the first button and the key value information of the second button, and the correspondence is established by the control device according to the identifier of the first button and the indication information.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving unit is configured to receive, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

With reference to the foregoing aspect and any possible implementation manner, an implementation manner is further provided, where the sending unit is configured to send the indication information to the control device in a wired or wireless manner.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the receiving unit is configured to receive, in a wired or wireless manner, the identifier of the first button that is sent by the control device according to the indication information.

According to another aspect of the present application, a control device is provided, including a communications interface, a memory, and at least one processor, where the communications interface is configured to send a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; the communications interface is further configured to receive indication information sent by the first remote control, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received; the communications interface is further configured to send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence; the memory stores executable program code; and the processor runs a program corresponding to the executable program code by reading the executable program code stored in the memory, so as to implement a control function of the control device.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is acknowledgement information used to indicate that the key value information of the second button has been received.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is the key value information of the second button; the processor is further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information, and transmit the correspondence to the communications interface; and the communications interface is further configured to send the correspondence to the first remote control, where the correspondence includes the identifier of the first button and the key value information of the second button, so that the first remote control obtains the correspondence according to the identifier of the first button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the communications interface is configured to receive, in a wired or wireless manner, the indication information sent by the first remote control.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the communications interface is configured to send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

According to another aspect of the present application, a remote control is provided, including a communications interface, a memory, and at least one processor, where the communications interface is configured to receive key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by a display device, where first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button; the communications interface is further configured to send indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received; the communications interface is further configured to receive an iden-

tifier of the first button that is sent by the control device according to the indication information; the memory is configured to store executable program code; and the processor runs a program corresponding to the executable program code by reading the executable program code stored in the memory, so as to obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button; and set key value information of the first button to the key value information of the second button according to the correspondence.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is acknowledgement information used to indicate that the key value information of the second button has been received; and the processor is further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

With reference to the foregoing aspect or any possible implementation manner, an implementation manner is further provided, where the indication information is the key value information of the second button; and the processor is further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button; or the communications interface is further configured to receive the correspondence, which is sent by the control device, of key value information between the first button and the second button, where the correspondence includes the identifier of the first button and the key value information of the second button, and the correspondence is established by the control device according to the identifier of the first button and the indication information.

According to the foregoing technical solutions, a display instruction is sent to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; and further, indication information sent by the first remote control is received, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received, so that an identifier of the first button can be sent to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence. It can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

BRIEF DESCRIPTION OF THE DRAWINGS

To describe the technical solutions in the embodiments of the present application more clearly, the following briefly introduces the accompanying drawings required for describing the embodiments. The accompanying drawings in the following description show some embodiments of the present application, and a person of ordinary skill in the art may still derive other drawings from these accompanying drawings without creative efforts.

FIG. **1** is a schematic flowchart of a method for processing key value information of a remote control according to an embodiment of the present application;

FIG. **2** is a schematic flowchart of a method for processing key value information of a remote control according to another embodiment of the present application;

FIG. **3** is a schematic structural diagram of a control device according to another embodiment of the present application;

FIG. **4** is a schematic structural diagram of a control device according to another embodiment of the present application;

FIG. **5** is a schematic structural diagram of a remote control according to another embodiment of the present application;

FIG. **6** is a schematic structural diagram of a remote control according to another embodiment of the present application;

FIG. **7** is a schematic structural diagram of a remote control according to another embodiment of the present application;

FIG. **8** is a schematic structural diagram of a control device according to another embodiment of the present application; and

FIG. **9** is a schematic structural diagram of a remote control according to another embodiment of the present application.

DETAILED DESCRIPTION

To make the objectives, technical solutions, and advantages of the embodiments of the present application clearer, the following clearly describes the technical solutions in the embodiments of the present application with reference to the accompanying drawings in the embodiments of the present application. The described embodiments are merely some but not all of the embodiments of the present application. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of the present application without creative efforts shall fall within the protection scope of the present application.

In addition, the term "and/or" in this specification describes only an association relationship for describing associated objects and represents that three relationships may exist. For example, A and/or B may represent the following three cases: only A exists, both A and B exist, and only B exists. In addition, the character "/" in this specification generally indicates an "or" relationship between the associated objects.

FIG. **1** is a schematic flowchart of a method for processing key value information of a remote control according to an embodiment of the present application, as shown in FIG. **1**.

101. Send a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control.

102. Receive indication information sent by the first remote control, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value

information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received.

103. Send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button.

It should be noted that **101** to **103** may be performed by a control device, which may be a terminal device, where the terminal device separately establishes a communication connection with the first remote control, the second remote control, and the display device.

Optionally, in a possible implementation manner of this embodiment, the indication information may be acknowledgement information used to indicate that the key value information of the second button has been received. Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the indication information may also be the key value information of the second button.

Correspondingly, the control device may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information; and send the correspondence to the first remote control, where the correspondence includes the identifier of the first button and the key value information of the second button, so that the first remote control obtains the correspondence according to the identifier of the first button.

Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, in **102**, the first remote control may receive, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

Optionally, in a possible implementation manner of this embodiment, in **102**, the control device may receive, in a wired or wireless manner, the indication information sent by the first remote control.

Optionally, in a possible implementation manner of this embodiment, in **103**, the control device may send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

The wired manner may include but is not limited to a personal system 2 (PS2) interface manner or a universal serial bus (USB) interface manner.

The wireless manner may include but is not limited to an infrared manner, a Bluetooth® manner, a radio frequency manner, or a wireless fidelity (WiFi) manner.

It should be noted that the technical solution provided by this embodiment may be used to set key value information of corresponding first buttons one by one correspondingly for every second button on the second remote control and key value information of every second button. The control device may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the first remote control has set key value information of the first button, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button has been set. Then, the control device repeats **101** to **103**, so that the first remote control sets the key value information of the corresponding first buttons one by one.

It should be noted that the technical solution provided by this embodiment may be further used to uniformly set key value information of corresponding first buttons correspondingly for every second button on the second remote control and key value information of every second button. The control device may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after sending the identifier of the first button to the first remote control, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button is subsequently to be uniformly set. Then, the control device repeats **101** to **103** until the first remote control obtains a correspondence that includes key value information of every second button on the second remote control, so that the first remote control may uniformly set key value information of corresponding first buttons according to the correspondence.

In this embodiment, a display instruction is sent to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; and further, indication information sent by the first remote control is received, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received, so that an identifier of the first button can be sent to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence. A problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls can be avoided. By using the technical solution provided by this embodiment of the present invention, it can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

FIG. **2** is a schematic flowchart of a method for processing key value information of a remote control according to another embodiment of the present application, as shown in FIG. **2**.

201. Receive key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button.

202. Send indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received.

203. Receive an identifier of the first button that is sent by the control device according to the indication information.

204. Obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button.

205. Set key value information of the first button to the key value information of the second button according to the correspondence.

It should be noted that **201** to **205** may be performed by a first remote control. The control device may be a terminal device, where the terminal device separately establishes a communication connection with the first remote control, the second remote control, and the display device.

Optionally, in a possible implementation manner of this embodiment, the indication information may be acknowledgement information used to indicate that the key value information of the second button has been received. Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the indication information may also be the key value information of the second button.

Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Correspondingly, the first remote control may further receive the correspondence, which is sent by the control device, of key value information between the first button and the second button, where the correspondence includes the identifier of the first button and the key value information of the second button, and the correspondence is established by the control device according to the identifier of the first button and the indication information.

Optionally, in a possible implementation manner of this embodiment, in **201**, the first remote control may receive, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

Optionally, in a possible implementation manner of this embodiment, in **202**, the first remote control may send the indication information to the control device in a wired or wireless manner.

Optionally, in a possible implementation manner of this embodiment, in **203**, the first remote control may receive, in a wired or wireless manner, the identifier of the first button that is sent by the control device, according to the indication information.

The wired manner may include but is not limited to a PS2 interface manner or a USB interface manner.

The wireless manner may include but is not limited to an infrared manner, a Bluetooth® manner, a radio frequency manner, or a WiFi manner.

It should be noted that the technical solution provided by this embodiment may be used to set key value information of corresponding first buttons one by one correspondingly for every second button on the second remote control and key value information of every second button. The control device may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the first remote control has set key value information of the first button, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button has been set. Then, the first remote control repeats **201** to **205** to set key value information of corresponding first buttons one by one.

It should be noted that the technical solution provided by this embodiment may be further used to uniformly set key value information of corresponding first buttons correspondingly for to every second button on the second remote control and key value information of every second button. The control device may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after sending the identifier of the first button to the first remote control, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button is subsequently to be uniformly set. Then, the first remote control repeats **201** to **204** until the first remote control obtains the correspondence that includes key value information of every second button on the second remote control, and then the first remote control may perform **205**, that is, uniformly set key value information of corresponding first buttons according to the correspondence.

In this embodiment, key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button; and further, indication information is sent to the control device, where the indication information is used to indicate a status that the key value information of the second button is received, so that an identifier of the first button that is sent by the control device according to the indication information can be received, and a correspondence of key value information between the first button and the second button is obtained according to the

identifier of the first button, so as to set the key value information of the first button to the key value information of the second button according to the correspondence. A problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls can be avoided. By using the technical solution provided by this embodiment of the present invention, it can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

It should be noted that, for brief description, the foregoing method embodiments are represented as series of actions. However, a person skilled in the art should appreciate that the present application is not limited to the described order of the actions, because according to the present application, some steps may be performed in other order or simultaneously. It should be further appreciated by a person skilled in the art that the embodiments described in this specification are all exemplary embodiments, and the involved actions and modules are not necessarily required by the present application.

In the foregoing embodiments, the description of every embodiment has respective focuses. For a part that is not described in detail in one embodiment, reference may be made to related descriptions in other embodiments.

FIG. **3** is a schematic structural diagram of a control device according to another embodiment of the present application. As shown in FIG. **3**, the control device according to this embodiment may include a sending unit **31** and a receiving unit **32**. The sending unit **31** is configured to send a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control. The receiving unit **32** is configured to receive indication information sent by the first remote control, and transmit the indication information to the sending unit **31**, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received. The sending unit **31** is further configured to send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence.

It should be noted that the control device provided by this embodiment may be a terminal device, where the terminal device separately establishes a communication connection with the first remote control, the second remote control, and the display device.

Optionally, in a possible implementation manner of this embodiment, the indication information may be acknowledgement information used to indicate that the key value information of the second button has been received. Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the indication information may also be the key value information of the second button.

Correspondingly, as shown in FIG. **4**, the control device may further include an establishing unit **41** configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information, and transmit the correspondence to the sending unit **31**; and the sending unit **31** is further configured to send the correspondence to the first remote control, where the correspondence includes the identifier of the first button and the key value information of the second button, so that the first remote control obtains the correspondence according to the identifier of the first button.

Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the receiving unit **32** may be configured to receive, in a wired or wireless manner, the indication information sent by the first remote control.

Optionally, in a possible implementation manner of this embodiment, the sending unit **31** may be configured to send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

The wired manner may include but is not limited to a PS2 interface manner or a USB interface manner.

The wireless manner may include but is not limited to an infrared manner, a Bluetooth® manner, a radio frequency manner, or a WiFi manner.

It should be noted that the technical solution provided by this embodiment may be used to set key value information of corresponding first buttons one by one correspondingly for every second button on the second remote control and key value information of every second button. The sending unit **31** may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the first remote control has set key value information of the first button, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button has been set. Then, the sending unit **31** and the receiving unit **32** repeat their respective operations, so that the first remote control set key value information of corresponding first buttons one by one.

It should be noted that the technical solution provided by this embodiment may be further used to uniformly set key value information of corresponding first buttons correspondingly for every second button on the second remote control and key value information of every second button. The sending unit **31** may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the control device

sends the identifier of the first button to the first remote control, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button is subsequently to be uniformly set. Then, the sending unit **31** and the receiving unit **32** repeat their respective operations until the first remote control obtains a correspondence that includes key value information of every second button on the second remote control, so that the first remote control may uniformly set key value information of corresponding first buttons according to the correspondence.

In this embodiment, a control device sends, by using a sending unit, a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; and further, a receiving unit receives indication information sent by the first remote control, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received, so that the sending unit can send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence. A problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls can be avoided. By using the technical solution provided by this embodiment of the present invention, it can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

FIG. **5** is a schematic structural diagram of a remote control according to another embodiment of the present application. As shown in FIG. **5**, the remote control according to this embodiment may include a receiving unit **51**, a sending unit **52**, an obtaining unit **53**, and a setting unit **54**. The receiving unit **51** is configured to receive key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button. The sending unit **52** is configured to send indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received by the receiving unit **51**. The receiving unit **51** is further configured to receive an identifier of the first button that is sent by the control device according to the indication information, and transmit the identifier of the first button to the obtaining unit **53**. The obtaining unit **53** is configured to obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button, and transmit the correspondence to a setting unit **54**. The setting unit **54** is configured to set key value information of the first button to the key value information of the second button according to the correspondence.

It should be noted that the control device may be a terminal device, where the terminal device separately establishes a communication connection with the remote control, the second remote control, and the display device.

Optionally, in a possible implementation manner of this embodiment, the indication information may be acknowledgement information used to indicate that the key value information of the second button has been received. Correspondingly, as shown in FIG. **6**, the remote control may further include a first establishing unit **61** configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the indication information may also be the key value information of the second button.

Correspondingly, as shown in FIG. **7**, the remote control according to this embodiment may further include a second establishing unit **71** configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Correspondingly, the receiving unit **51** may be further configured to receive the correspondence, which is sent by the control device, of key value information between the first button and the second button, where the correspondence includes the identifier of the first button and the key value information of the second button, and the correspondence is established by the control device according to the identifier of the first button and the indication information.

Optionally, in a possible implementation manner of this embodiment, the receiving unit **51** may be configured to receive, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

Optionally, in a possible implementation manner of this embodiment, the sending unit **52** may be configured to send the indication information to the control device in a wired or wireless manner.

Optionally, in a possible implementation manner of this embodiment, the receiving unit **51** may be configured to receive, in a wired or wireless manner, the identifier of the first button that is sent by the control device according to the indication information.

The wired manner may include but is not limited to a PS2 interface manner or a USB interface manner.

The wireless manner may include but is not limited to an infrared manner, a Bluetooth® manner, a radio frequency manner, or a WiFi manner.

It should be noted that the technical solution provided by this embodiment may be used to set key value information of corresponding first buttons one by one correspondingly for every second button on the second remote control and key value information of every second button. The control device may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example,

green), one to-be-learned first button on the first remote control. Correspondingly, after the setting unit **54** has set the key value information of the first button, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button has been set. Then, the receiving unit **51**, the sending unit **52**, the obtaining unit **53**, and the setting unit **54** repeat their respective operations, so as to set key value information of corresponding first buttons one by one.

It should be noted that the technical solution provided by this embodiment may be further used to uniformly set key value information of corresponding first buttons correspondingly for every second button on the second remote control and key value information of every second button. The control device may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after sending the identifier of the first button to the first remote control, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button is subsequently to be uniformly set. Then, the receiving unit **51**, the sending unit **52**, and the obtaining unit **53** repeat their respective operations until the obtaining unit **53** obtains the correspondence that includes key value information of every second button on the second remote control, and then the setting unit **54** may perform an operation, that is, uniformly set key value information of corresponding first buttons according to the correspondence.

In this embodiment, a remote control receives, by using a receiving unit, key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button; further, a sending unit sends indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received, so that the receiving unit can receive an identifier of the first button that is sent by the control device according to the indication information; an obtaining unit obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, so that a setting unit sets key value information of the first button to the key value information of the second button according to the correspondence. A problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls can be avoided. By using the technical solution provided by this embodiment of the present invention, it can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

FIG. **8** is a schematic structural diagram of a control device according to another embodiment of the present application. As shown in FIG. **8**, the control device according to this embodiment may include a communications interface **80**, a memory **81**, and at least one processor **82**.

The communications interface **80** is configured to send a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control.

The communications interface **80** is further configured to receive indication information sent by the first remote control, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received.

The communications interface **80** is further configured to send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence.

The memory **81** is configured to store executable program code. The processor **82** runs a program corresponding to the executable program code by reading the executable program code stored in the memory **81**, so as to implement a control function of the control device.

It should be noted that the control device provided by this embodiment may be a terminal device, where the terminal device separately establishes a communication connection with the first remote control, the second remote control, and the display device.

Optionally, in a possible implementation manner of this embodiment, the indication information may be acknowledgement information used to indicate that the key value information of the second button has been received. Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the indication information may also be the key value information of the second button.

Correspondingly, the processor **82** may be further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information, and transmit the correspondence to the communications interface **80**. Correspondingly, the communications interface **80** may be further configured to send the correspondence to the first remote control, where the correspondence includes the identifier of the first button and the key value information of the second button, so that the first remote control obtains the correspondence according to the identifier of the first button.

Correspondingly, the first remote control may further establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the communications interface **80** may be configured to receive, in a wired or wireless manner, the indication information sent by the first remote control.

Optionally, in a possible implementation manner of this embodiment, the communications interface **80** may be configured to send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

The wired manner may include but is not limited to a PS2 interface manner or a USB interface manner.

The wireless manner may include but is not limited to an infrared manner, a Bluetooth® manner, a radio frequency manner, or a WiFi manner.

It should be noted that the technical solution provided by this embodiment may be used to set key value information of corresponding first buttons one by one correspondingly for every second button on the second remote control and key value information of every second button. The communications interface **80** may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the first remote control has set key value information of the first button, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button has been set. Then, the communications interface **80** repeats the operation, so that the first remote control sets key value information of corresponding first buttons one by one.

It should be noted that the technical solution provided by this embodiment may be further used to uniformly set key value information of corresponding first buttons correspondingly for every second button on the second remote control and key value information of every second button. The communications interface **80** may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the first remote control sends the identifier of the first button to the first remote control, the control device may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button is subsequently to be uniformly set. Then, the communications interface **80** repeats the operation until the first remote control obtains a correspondence that includes key value information of every second button on the second remote control, so that the first remote control may uniformly set key value information of corresponding first buttons according to the correspondence.

In this embodiment, a control device sends, by using a communications interface, a display instruction to a display device, where the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control; and further indication information sent by the first remote control is received, where the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received, so that the communications interface can send an identifier of the first button to the first remote control according to the indication information, so that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence. A problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls can be avoided. By using the technical solution provided by this embodiment of the present invention, it can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

FIG. **9** is a schematic structural diagram of a remote control according to another embodiment of the present application. As shown in FIG. **9**, the remote control according to this embodiment may include a communications interface **90**, a memory **91**, and at least one processor **92**.

The communications interface **90** is configured to receive key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button.

The communications interface **90** is further configured to send indication information to the control device, where the indication information is used to indicate a status that the key value information of the second button is received.

The communications interface **90** is further configured to receive an identifier of the first button that is sent by the control device according to the indication information.

The memory **91** is configured to store executable program code. The processor **92** runs a program corresponding to the executable program code by reading the executable program code stored in the memory **91**, so as to obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button; and set key value information of the first button to the key value information of the second button according to the correspondence.

It should be noted that, the control device may be a terminal device, where the terminal device separately establishes a communication connection with the remote control, the second remote control, and the display device.

Optionally, in a possible implementation manner of this embodiment, the indication information may be acknowledgement information used to indicate that the key value information of the second button has been received. Corre-

spondingly, the processor **92** may be further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Optionally, in a possible implementation manner of this embodiment, the indication information may also be the key value information of the second button.

Correspondingly, the processor **92** may be further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

Correspondingly, the communications interface **90** may be further configured to receive the correspondence, which is sent by the control device, of key value information between the first button and the second button, where the correspondence includes the identifier of the first button and the key value information of the second button, and the correspondence is established by the control device according to the identifier of the first button and the indication information.

Optionally, in a possible implementation manner of this embodiment, the communications interface **90** may be configured to receive, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

Optionally, in a possible implementation manner of this embodiment, the communications interface **90** may be configured to send the indication information to the control device in a wired or wireless manner.

Optionally, in a possible implementation manner of this embodiment, the communications interface **90** may be configured to receive, in a wired or wireless manner, the identifier of the first button that is sent by the control device according to the indication information.

The wired manner may include but is not limited to a PS2 interface manner or a USB interface manner.

The wireless manner may include but is not limited to an infrared manner, a Bluetooth® manner, a radio frequency manner, or a WiFi manner.

It should be noted that the technical solution provided by this embodiment may be used to set key value information of corresponding first buttons one by one correspondingly for every second button on the second remote control and key value information of every second button. The communications interface **90** may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after the processor **92** has set the key value information of the first button, the communications interface **90** may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button has been set. Then, the communications interface **90** and the processor **92** repeat the operations, so as to set key value information of corresponding first buttons one by one.

It should be noted that the technical solution provided by this embodiment may be further used to uniformly set key value information of corresponding first buttons correspondingly for every second button on the second remote control and key value information of every second button. The communications interface **90** may send a display instruction to the display device, where the display instruction is used to instruct the display device to highlight, in a first specified color (for example, green), one to-be-learned first button on the first remote control. Correspondingly, after sending the identifier of the first button to the first remote control, the communications interface **90** may further send another display instruction to the display device, where the another display instruction is used to instruct the display device to highlight the first button in a second specified color (for example, red) different from the first specified color, so as to indicate that the first button is subsequently to be uniformly set. Then, the communications interface **90** and the processor **92** repeat the operations until the processor **92** obtains the correspondence that includes key value information of every second button on the second remote control, and then the processor **92** may perform the rest operations, that is, uniformly set key value information of corresponding first buttons according to the correspondence.

In this embodiment, a remote control receives, by using a communications interface, key value information, which is sent by a second remote control, of a second button on the second remote control, where the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, where the first button displayed by the display device is a display instruction sent by a control device and received by the display device, where the display instruction is used to instruct the display device to display the first button; and further, indication information is sent to the control device, where the indication information is used to indicate a status that the key value information of the second button is received, so that the communications interface can receive an identifier of the first button that is sent by the control device according to the indication information, so that further, a processor can obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button, so as to set key value information of the first button to the key value information of the second button according to the correspondence. A problem, in the prior art, of reduced operation efficiency and reduced operation reliability caused by the need of simultaneous operations on two remote controls can be avoided. By using the technical solution provided by this embodiment of the present invention, it can be implemented that another remote control is synchronously set by performing operations on one remote control and displaying, by using a display device, a to-be-learned button on the another remote control, which is easy to operate and thereby improves operation efficiency and operation reliability.

It may be clearly understood by a person skilled in the art that, for the purpose of convenient and brief description, for a detailed working process of the foregoing system, apparatus, and unit, reference may be made to a corresponding process in the foregoing method embodiments, and details are not described herein again.

In the several embodiments provided in the present application, it should be understood that the disclosed system, apparatus, and method may be implemented in other manners. For example, the described apparatus embodiment is merely exemplary. For example, the unit division is merely logical function division and may be other division in actual implementation. For example, a plurality of units or components may be combined or integrated into another system, or some features may be ignored or not performed. In addition, the displayed or discussed mutual couplings or direct couplings or communication connections may be

implemented through some interfaces. The indirect couplings or communication connections between the apparatuses or units may be implemented in electronic, mechanical, or other forms.

The units described as separate parts may or may not be physically separate, and parts displayed as units may or may not be physical units, may be located in one position, or may be distributed on a plurality of network units. Some or all of the units may be selected according to actual needs to achieve the objectives of the solutions of the embodiments.

In addition, functional units in the embodiments of the present application may be integrated into one processing unit, or each of the units may exist alone physically, or two or more units are integrated into one unit. The integrated unit may be implemented in a form of hardware, or may be implemented in a form of hardware in addition to a software functional unit.

When the foregoing integrated unit is implemented in a form of a software functional unit, the integrated unit may be stored in a computer-readable storage medium. The software functional unit is stored in a storage medium and includes several instructions for instructing a computer device (which may be a personal computer, a server, or a network device) or a processor to perform some of the steps of the methods described in the embodiments of the present application. The foregoing storage medium includes any medium that can store program code, such as a USB flash drive, a removable hard disk, a read-only memory (ROM), a random access memory (RAM), a magnetic disk, or an optical disc.

Finally, it should be noted that the foregoing embodiments are merely intended for describing the technical solutions of the present application, but not for limiting the present application. Although the present application is described in detail with reference to the foregoing embodiments, persons of ordinary skill in the art should understand that they may still make modifications to the technical solutions described in the foregoing embodiments or make equivalent replacements to some technical features thereof, without departing from the spirit and scope of the technical solutions of the embodiments of the present application.

What is claimed is:

1. A method for processing key value information of a remote control, comprising:

sending a display instruction to a display device, wherein the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control;

receiving indication information sent by the first remote control, wherein the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, wherein the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and the indication information is used to indicate a status that the key value information of the second button is received;

sending an identifier of the first button from a control device to the first remote control through a communications channel established between the control device and the first remote control according to the indication information such that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button;

setting key value information of the first button to the key value information of the second button; and

sending a second display instruction from the control device to the display device after the key value information of the first button is set to the key value information of the second button,

wherein the second display instruction instructs the display device to highlight the first button in a specified color to indicate that the first button has been set.

2. The method according to claim **1**, wherein the indication information is acknowledgement information used to indicate that the key value information of the second button has been received, and wherein the method further comprises establishing, by the first remote control, the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

3. The method according to claim **1**, wherein the indication information is the key value information of the second button, and wherein the method further comprises:

establishing the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information;

sending the correspondence to the first remote control, wherein the correspondence comprises the identifier of the first button and the key value information of the second button such that the first remote control obtains the correspondence according to the identifier of the first button; or

establishing, by the first remote control, the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

4. The method according to claim **1**, wherein receiving, by the first remote control, the key value information of the second button sent by the second remote control comprises receiving, by the first remote control in a wired or wireless manner, the key value information of the second button sent by the second remote control.

5. The method according to claim **1**, wherein receiving indication information sent by the first remote control comprises receiving, in a wired or wireless manner, the indication information sent by the first remote control.

6. The method according to claim **1**, wherein sending the identifier of the first button to the first remote control according to the indication information comprises sending the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

7. A method for processing key value information of a remote control, comprising:

receiving key value information, which is sent by a second remote control, of a second button on the second remote control, wherein the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to a first button displayed by a display device, wherein the first button displayed by the display device is displayed by the display device according to a display instruction sent by a control device, and wherein the display instruction is used to instruct the display device to display the first button;

sending indication information to the control device, wherein the indication information is used to indicate a status that the key value information of the second button is received;

receiving an identifier of the first button that is sent by the control device according to the indication information, wherein the identifier of the first button is sent from the control device to a first remote control through a communications channel established between the control device and the first remote control;

obtaining a correspondence of key value information between the first button and the second button according to the identifier of the first button;

setting key value information of the first button to the key value information of the second button according to the correspondence; and

sending a second display instruction from the control device to the display device after the key value information of the first button is set to the key value information of the second button,

wherein the second display instruction instructs the display device to highlight the first button in a specified color to indicate that the first button has been set.

8. The method according to claim **7**, wherein the indication information is acknowledgement information used to indicate that the key value information of the second button has been received, and wherein the method further comprises establishing the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

9. The method according to claim **7**, wherein the indication information is the key value information of the second button, and wherein the method further comprises:

establishing the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button; or

receiving the correspondence of key value information between the first button and the second button, wherein the correspondence comprises the identifier of the first button and the key value information of the second button, and wherein the correspondence is established by the control device according to the identifier of the first button and the indication information.

10. The method according to claim **7**, wherein receiving the key value information of the second button on the second remote control comprises receiving, in a wired or wireless manner, the key value information of the second button sent by the second remote control.

11. The method according to claim **7**, wherein sending the indication information to the control device comprises sending the indication information to the control device in a wired or wireless manner.

12. The method according to claim **7**, wherein receiving the identifier of the first button that is sent by the control device according to the indication information comprises receiving, in a wired or wireless manner, the identifier of the first button that is sent by the control device according to the indication information.

13. A control device, comprising:

a non-transitory computer readable medium having instructions stored thereon; and

a computer processor coupled to the non-transitory computer readable medium and configured to execute the instruction to:

send a display instruction to a display device, wherein the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control;

receive indication information sent by the first remote control;

transmit the indication information, wherein the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received, wherein the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device, and wherein the indication information is used to indicate a status that the key value information of the second button is received;

send an identifier of the first button from the control device to the first remote control through a communications channel established between the control device and the first remote control according to the indication information such that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button;

set key value information of the first button to the key value information of the second button according to the correspondence; and

send a second display instruction from the control device to the display device after the key value information of the first button is set to the key value information of the second button,

wherein the second display instruction instructs the display device to highlight the first button in a specified color to indicate that the first button has been set.

14. The control device according to claim **13**, wherein the indication information is acknowledgement information used to indicate that the key value information of the second button has been received.

15. The control device according to claim **13**, wherein the indication information is the key value information of the second button, wherein the computer processor is further configured to execute the instructions to:

establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information; and

send the correspondence to the first remote control, and

wherein the correspondence comprises the identifier of the first button and the key value information of the second button such that the first remote control obtains the correspondence according to the identifier of the first button.

16. The control device according to claim **13**, wherein the computer processor is configured to receive, in a wired or wireless manner, the indication information sent by the first remote control.

17. The control device according to claim **13**, wherein the computer processor is configured to send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

18. A control device, comprising:

a communications interface;

a memory, and

at least one processor coupled to the communications interface and the memory,

wherein the communications interface is configured to send a display instruction to a display device,

wherein the display instruction is used to instruct the display device to display a to-be-learned first button on a first remote control,

wherein the communications interface is further configured to receive indication information sent by the first remote control,

wherein the indication information is sent by the first remote control after key value information, which is sent by a second remote control, of a second button on the second remote control is received,

wherein the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by the display device,

wherein the indication information is used to indicate a status that the key value information of the second button is received,

wherein the communications interface is further configured to send an identifier of the first button from the control device to the first remote control through a communications channel established between the control device and the first remote control according to the indication information such that the first remote control obtains a correspondence of key value information between the first button and the second button according to the identifier of the first button, and sets key value information of the first button to the key value information of the second button according to the correspondence,

wherein the memory stores executable program code,

wherein the processor runs a program corresponding to the executable program code by reading the executable program code stored in the memory to implement a control function of the control device,

wherein the control device is configured to send a second display instruction to the display device after the key value information of the first button is set to the key value information of the second button, and

wherein the second display instruction instructs the display device to highlight the first button in a specified color to indicate that the first button has been set.

19. The control device according to claim **18**, wherein the indication information is acknowledgement information used to indicate that the key value information of the second button has been received.

20. The control device according to claim **18**, wherein the indication information is the key value information of the second button, wherein the processor is further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the indication information, and transmit the correspondence to the communications interface, wherein the communications interface is further configured to send the correspondence to the first remote control, and wherein the correspondence comprises the identifier of the first button and the key value information of the second button such that the first remote control obtains the correspondence according to the identifier of the first button.

21. The control device according to claim **18**, wherein the communications interface is configured to receive, in a wired or wireless manner, the indication information sent by the first remote control.

22. The control device according to claim **18**, wherein the communications interface is configured to send the identifier of the first button to the first remote control in a wired or wireless manner according to the indication information.

23. A remote control, comprising:

a communications interface;

a memory; and

at least one processor coupled to the communications interface and the memory,

wherein the communications interface is configured to receive key value information, which is sent by a second remote control, of a second button on the second remote control,

wherein the key value information of the second button is information triggered by an operator by pressing the second button that corresponds to the first button displayed by a display device,

wherein the first button displayed by the display device is a display instruction sent by a control device and received by the display device,

wherein the display instruction is used to instruct the display device to display the first button,

wherein the communications interface is further configured to send indication information to the control device,

wherein the indication information is used to indicate a status that the key value information of the second button is received,

wherein the communications interface is further configured to receive an identifier of the first button that is sent by the control device according to the indication information,

wherein the identifier of the first button is sent from the control device to the remote control through a communications channel established between the control device and the remote control,

wherein the memory is configured to store executable program code,

wherein the processor runs a program corresponding to the executable program code by reading the executable program code stored in the memory to obtain a correspondence of key value information between the first button and the second button according to the identifier of the first button, and set key value information of the first button to the key value information of the second button according to the correspondence,

wherein the control device is configured to send a second display instruction to the display device after the key value information of the first button is set to the key value information of the second button, and

wherein the second display instruction instructs the display device to highlight the first button in a specified color to indicate that the first button has been set.

24. The remote control according to claim **23**, wherein the indication information is acknowledgement information used to indicate that the key value information of the second button has been received, and wherein the processor is further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button.

25. The remote control according to claim **23**, wherein the indication information is the key value information of the second button, and wherein the processor is further configured to establish the correspondence of key value information between the first button and the second button according to the identifier of the first button and the key value information of the second button, or wherein the communications interface is further configured to receive the cor-

respondence, which is sent by the control device, of key value information between the first button and the second button, wherein the correspondence comprises the identifier of the first button and the key value information of the second button, and wherein the correspondence is established by the control device according to the identifier of the first button and the indication information.

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