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(54) **INTERACTIVE GAMING SYSTEM**

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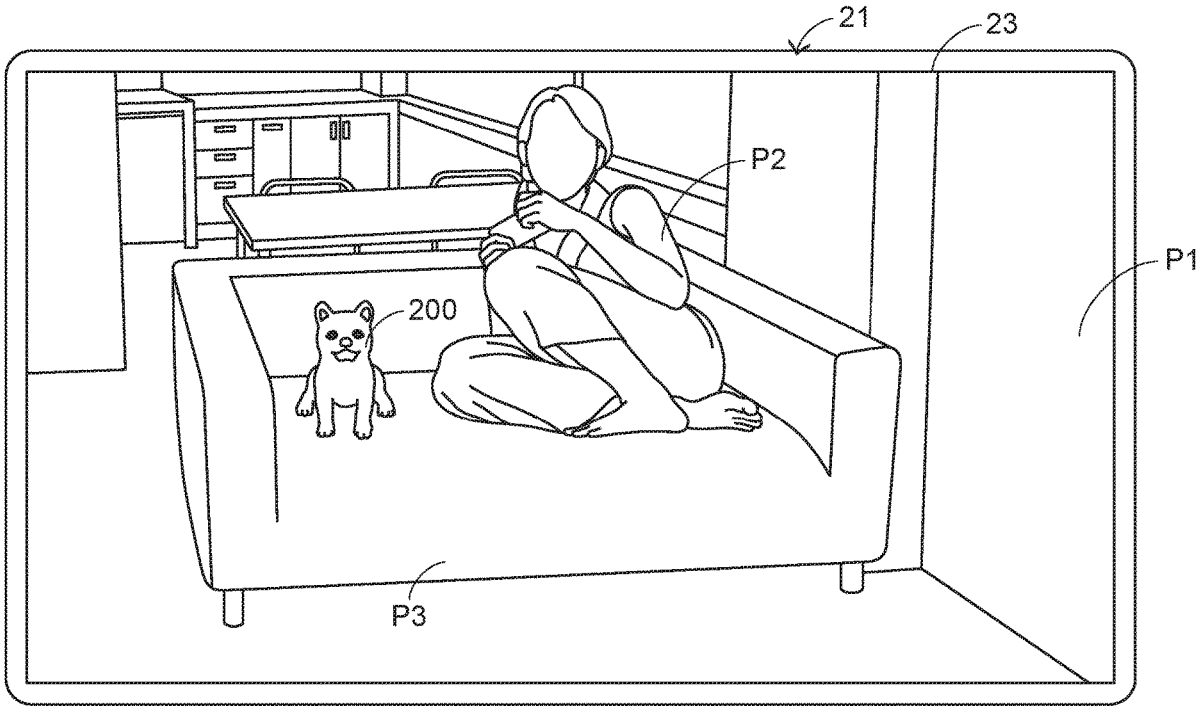
(57) **ABSTRACT**

An interactive gaming system includes an electronic device, an image capturing device, a display device and a recognition module. The electronic device executes a gaming software. The image capturing device shoots the user to acquire a user image. The user image is shown on the display device. The electronic device and the image capturing device can acquire the operating command from the user. The recognition module recognizes the operating command. According to the recognition result of the recognition module, the game character in the gaming software performs a corresponding action. Consequently, the user image and the game character are simultaneously shown on the display device. Moreover, the game character can perform the corresponding action according to the operating command from the user.



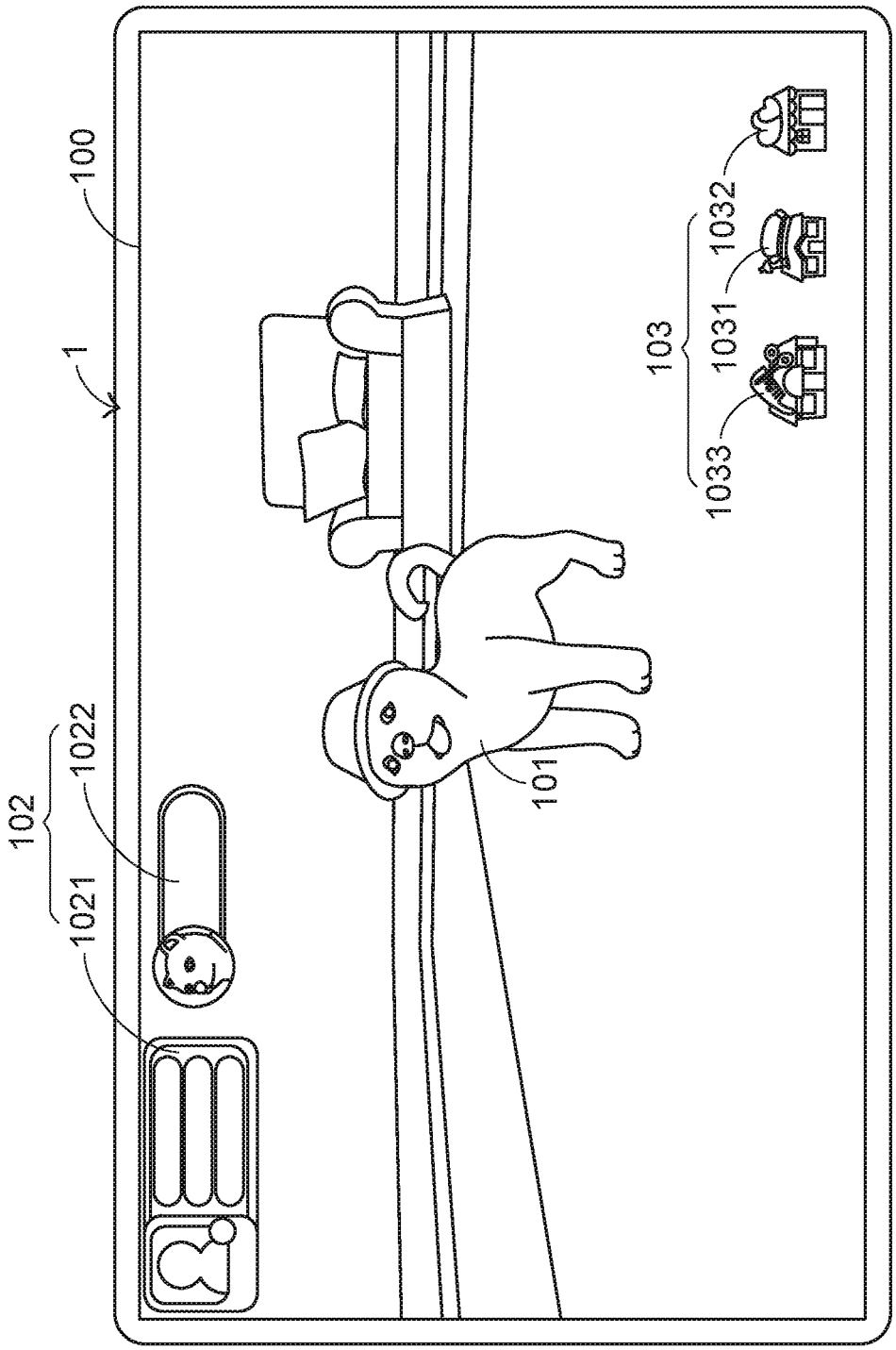


FIG.1
PRIOR ART

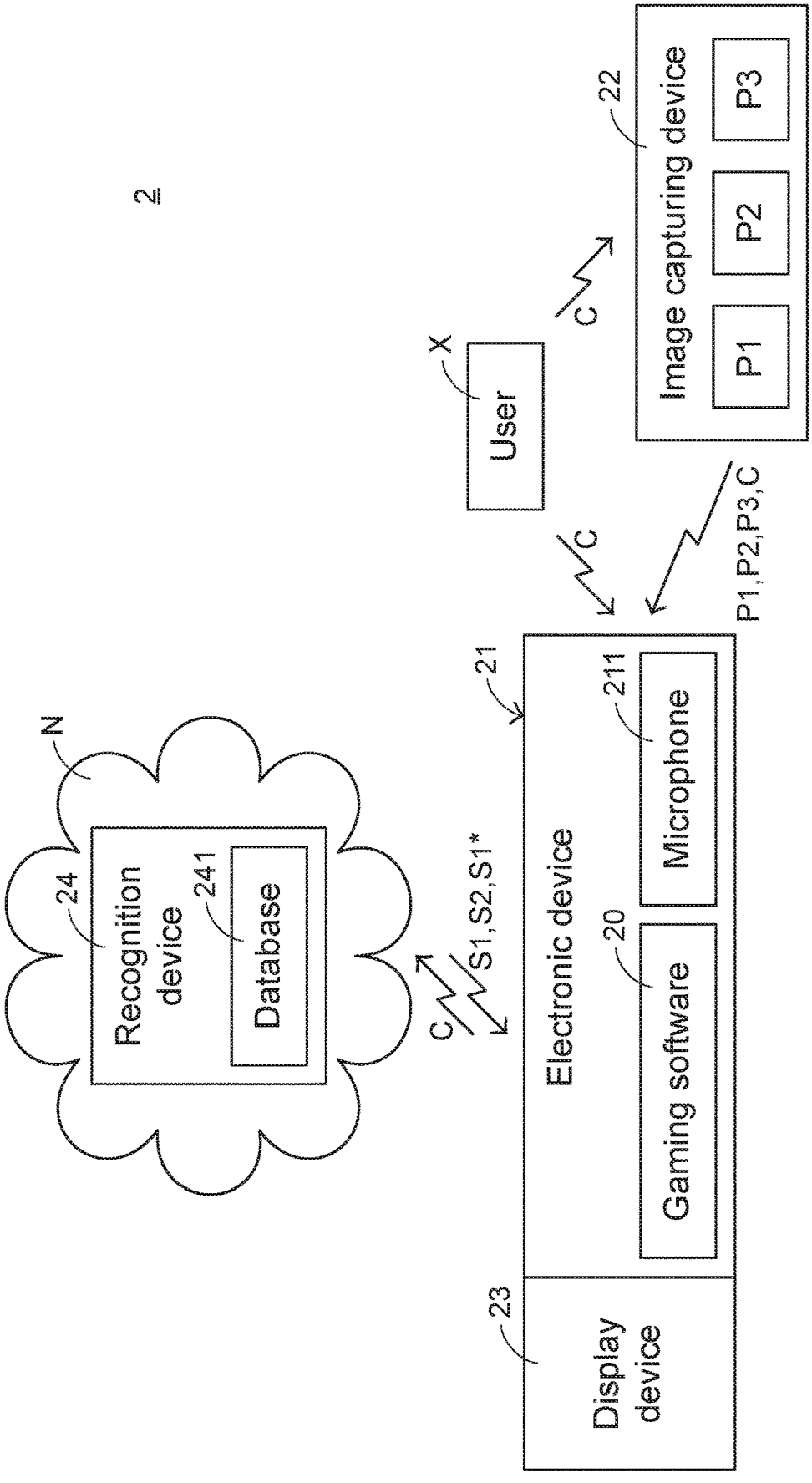

2
N
24
Recognition device
241
Database
C
S1,S2,S1*
21
Electronic device
211
Microphone
20
Gaming software
23
Display device
X
User
C
C
22
Image capturing device
P1
P2
P3
P1,P2,P3,C

FIG.2

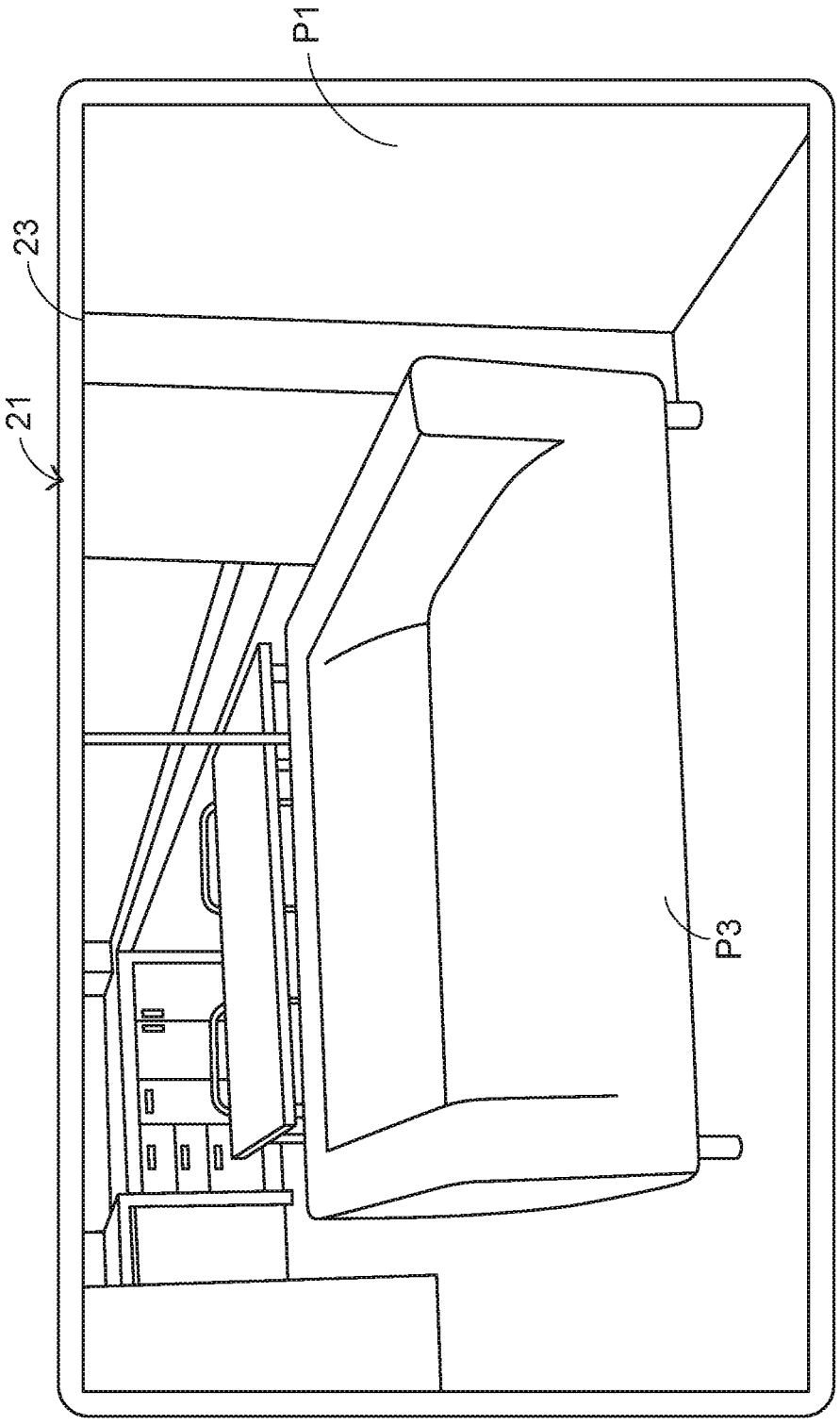


FIG.3

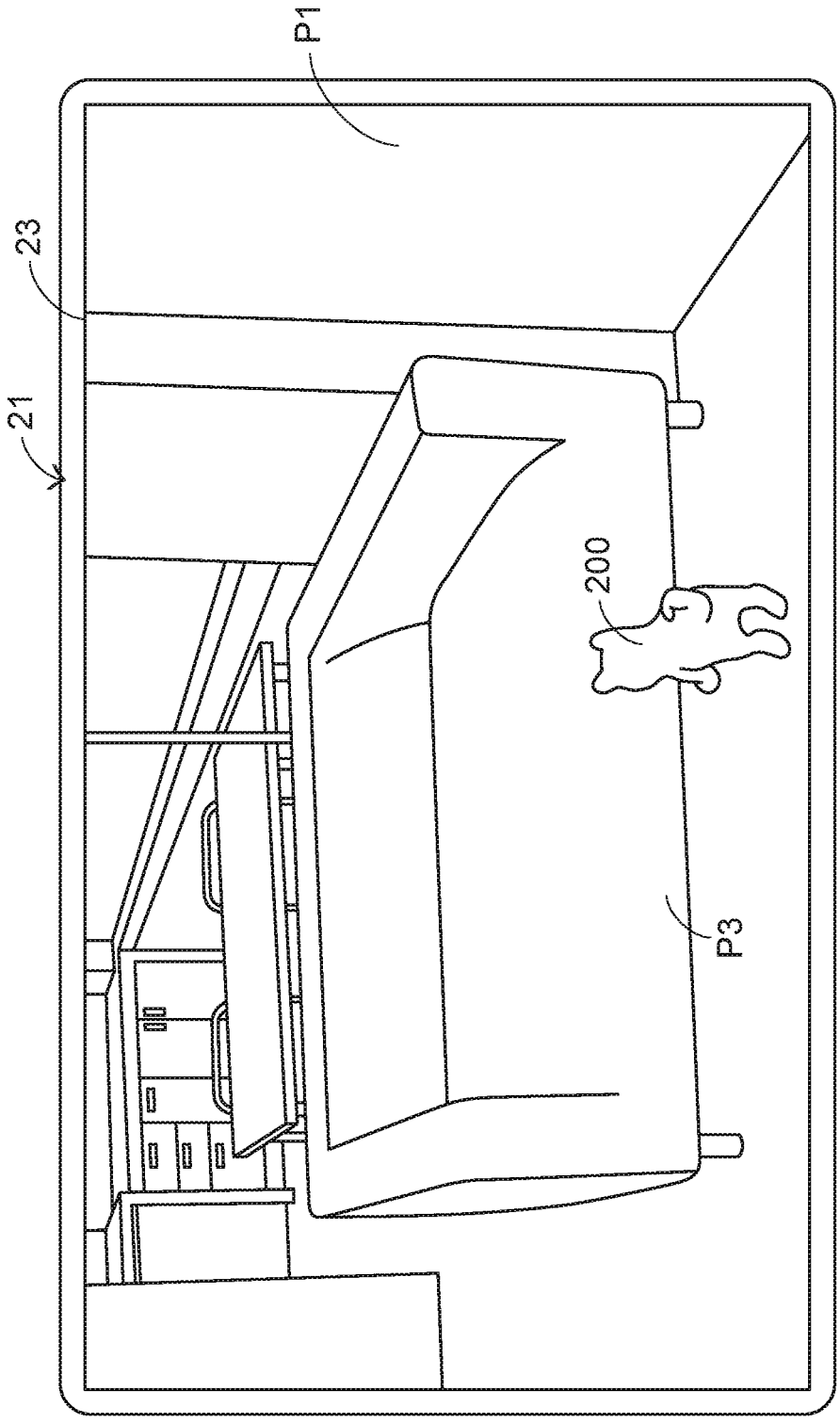


FIG.4

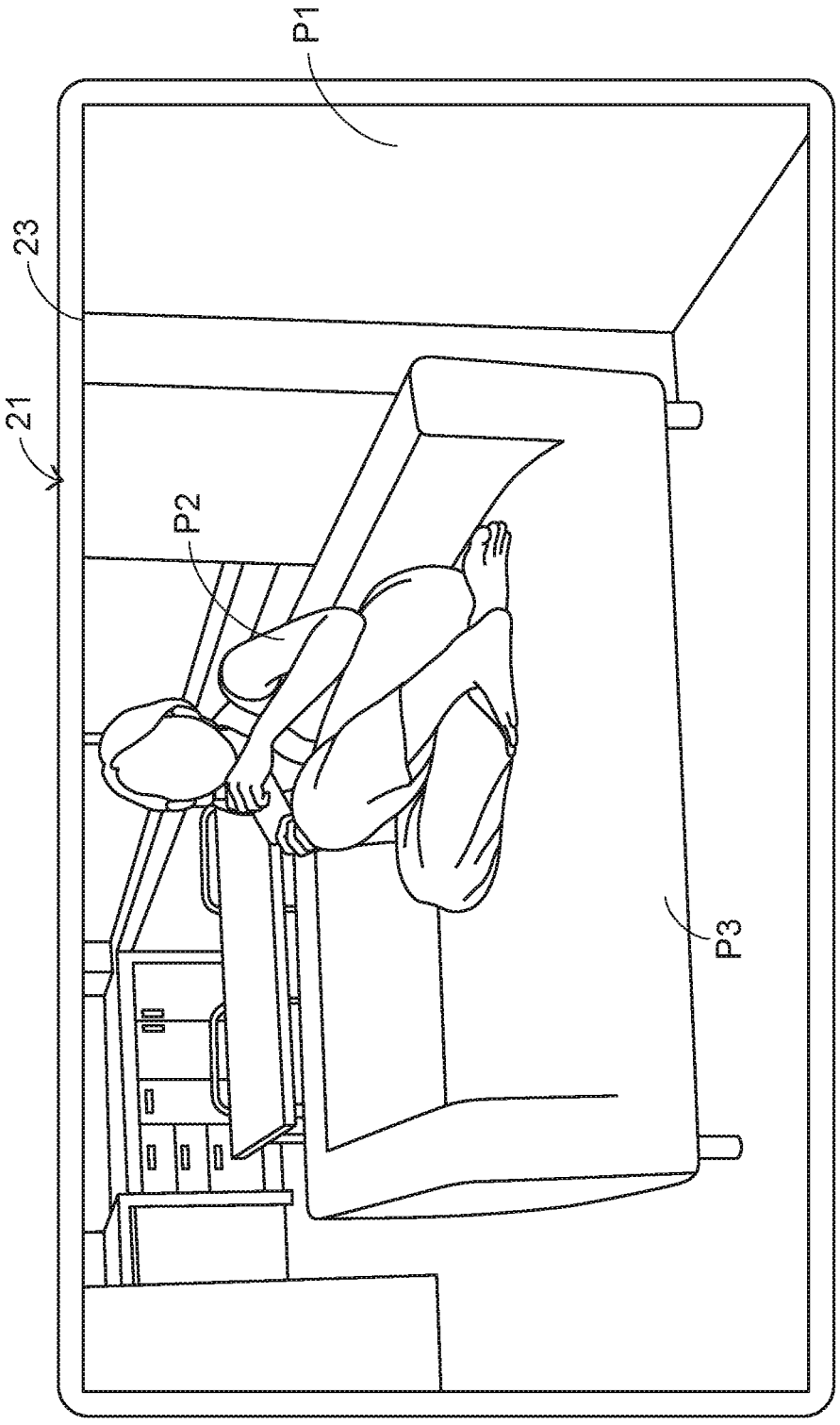


FIG.5

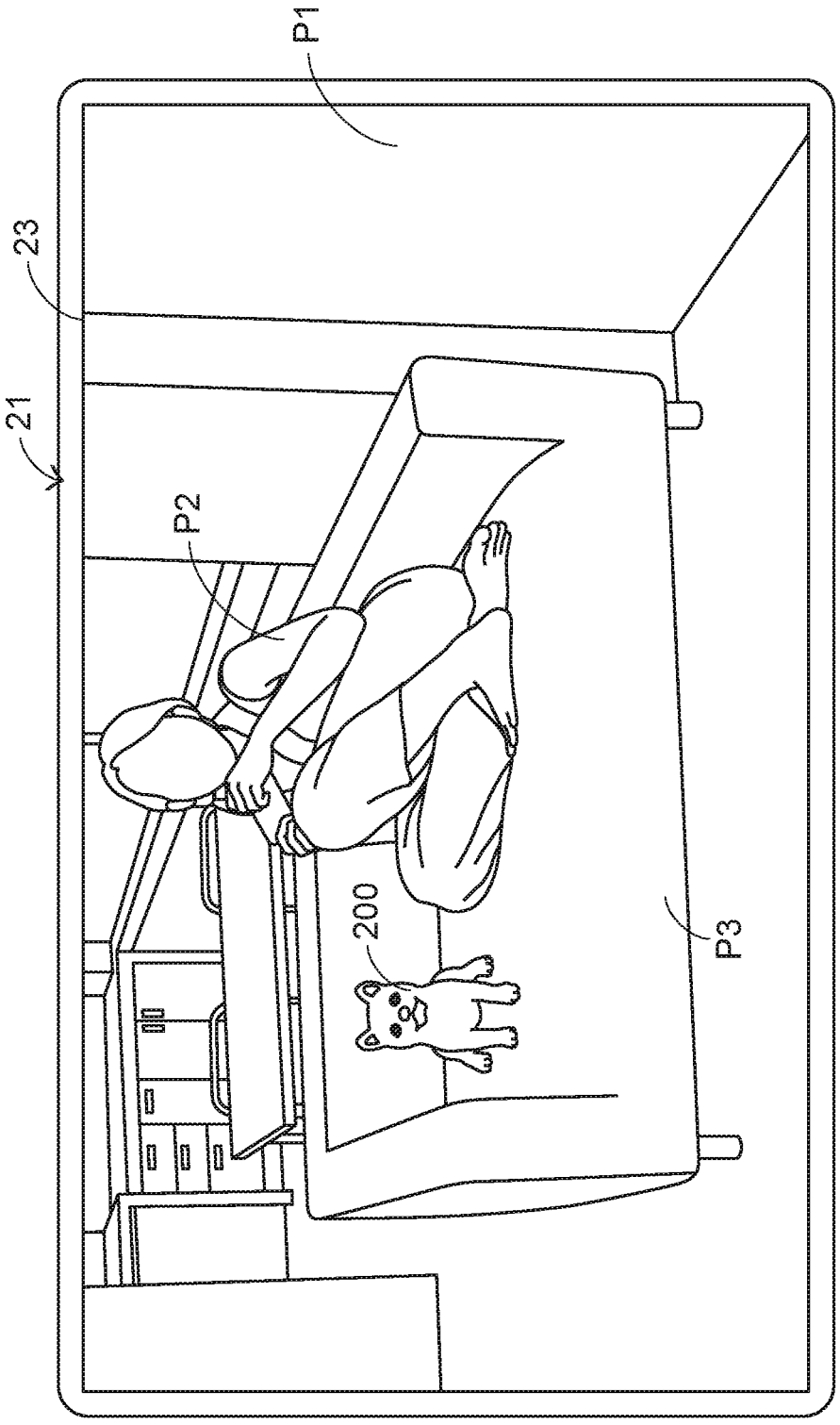


FIG.6

INTERACTIVE GAMING SYSTEM

FIELD OF THE INVENTION

[0001] The present invention relates to a gaming system, and more particularly to a gaming system for playing games by interacting with a game console.

BACKGROUND OF THE INVENTION

[0002] In the early stage, the gaming software is installed in a cassette or an optical disc, and a dedicated game console is needed to execute the gaming software. For example, the Nintendo game consoles in the earliest stage and the well-received Play Stations 1 to 4, Nintendo's Wii and Switch in the later stage are the examples of the dedicated game consoles. With the advancement of science and technology, users are increasingly pursuing the variability and interesting efficacy of games. Therefore, the game manufactures make efforts in developing new games in order to gain the favor of users.

[0003] Most of these game consoles require input interfaces such as joysticks or operation controllers (also known as handlebar) to input commands for playing games. In case that an electronic-sports game is played through a computer host, it is necessary to input commands through the input interface such as a mouse or a keyboard. In case that a computer game is played through a handheld electronic device such as a smart phone or a tablet computer, a touch screen is used as an input interface and commands are inputted into the handheld electronic device in a touch control manner. In other words, various input devices are required to input commands to play games.

[0004] Take a pet game as an example. FIG. **1** is a schematic diagram illustrating a screen image when a gaming software is executed in a conventional game console. In FIG. **1**, a conventional game console **1** is shown. The game console **1** comprises a touch screen **10**. When a gaming software (not shown) is executed in the game console **1**, a screen image **100** corresponding to the gaming software is displayed on the touch screen **10**. The screen image **100** includes a game character **101** (i.e., a pet), a status display interface **102** and a control interface **103**. The status display interface **102** includes a player status region **1021** and a pet status region **1022**. The control interface **103** includes a clothing replacement option **1031**, a shopping option **1032**, a beautifying option **1033** and other appropriate options. The user may touch the touch screen **10** to select an option of the control interface **103** to play the game. For example, the user may select the clothing replacement option **1031** to provide clothing (e.g., the hat as shown in FIG. **1**) in order to change the style of the game character **101**. The user may select the shopping option **1032** to increase the clothing or food of the game character **101**. Moreover, the user may select the beautifying option **1033** to bathe the game character **101** or trim the hair of the game character **101**.

[0005] As mentioned above, the conventional game console **1** still needs to use the touch screen **10** as an input interface to play the game. For enhancing the interesting efficacy of playing games, the present invention provides an interactive game system without the need of using an input device.

SUMMARY OF THE INVENTION

[0006] The present invention provides an interactive game system without the need of using an input device.

[0007] In accordance with an aspect of the present invention, there is provided an interactive gaming system. The interactive gaming system includes an electronic device, an image capturing device, a display device and a recognition module. The electronic device executes a gaming software and receives an operating command from a user. The image capturing device is in communication with the electronic device. The image capturing device shoots a scene to acquire a scene image, or the image capturing device shoots the user to acquire a user image. The display device is connected with the electronic device. The scene image, the user image and a game character corresponding to the gaming software are displayed on the display device. The recognition module is connected with the electronic device. After the recognition module receives and recognizes the operating command, an operating signal corresponding to the operating command is transmitted from the recognition module to the electronic device, and the game character in the scene image performs a corresponding action according to the operating signal.

[0008] In an embodiment, the recognition module includes a database, and plural predetermined commands are stored in the database. When the recognition module receives the operating command, the recognition module compares the operating command with the plural predetermined commands in the database. If the recognition module judges that the operating command complies with at least one of the plural predetermined commands, the operating signal corresponding to the operating command is transmitted from the recognition module to the electronic device. If the recognition module judges that the operating command does not comply with all of the plural predetermined commands, the recognition module issues a prompt signal to the electronic device.

[0009] From the above descriptions, the present invention provides the interactive gaming system. The image capturing device acquires the user image corresponding to the user. The user image is shown on the display device. Moreover, the operating command from the user is obtained through the electronic device or the image capturing device. Afterwards, the operating command is recognized by the recognition module. According to the recognition result of the recognition module, the game character in the gaming software performs a corresponding action. Consequently, the user can see that the user image and the game character are simultaneously shown on the same screen image of the display device. Moreover, the game character can perform the corresponding action according to the sound or gesture of the user. When compared with the conventional technology of using the joystick or the operation controller to play games, the interactive gaming system of the present invention allows the user to have the feel in the virtual situation and provides highly interesting efficacy to the user.

[0010] The above objects and advantages of the present invention will become more readily apparent to those ordinarily skilled in the art after reviewing the following detailed description and accompanying drawings, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. **1** is a schematic diagram illustrating a screen image when a gaming software is executed in a conventional game console;

[0012] FIG. **2** is a schematic functional block diagram illustrating an interactive gaming system according to an embodiment of the present invention;

[0013] FIG. **3** schematically illustrates a screen image shown on the display device of the interactive gaming system according to the embodiment of the present invention when the gaming software is executed;

[0014] FIG. **4** schematically illustrates a screen image shown on the display device of the interactive gaming system according to the embodiment of the present invention when a game character enters the scene image;

[0015] FIG. **5** schematically illustrates a screen image shown on the display device of the interactive gaming system according to the embodiment of the present invention when the user image appears in the scene image; and

[0016] FIG. **6** schematically illustrates a screen image shown on the display device of the interactive gaming system according to the embodiment of the present invention when the user image and the game character appear in the scene image.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0017] The present invention provides an interactive gaming system. FIG. **2** is a schematic functional block diagram illustrating an interactive gaming system according to an embodiment of the present invention. As shown in FIG. **2**, the interactive gaming system **2** comprises an electronic device **21**, an image capturing device **22**, a display device **23** and a recognition module **24**. A gaming software **20** is executed in the electronic device **21**. The electronic device **21** can receive an operating command from a user X. The image capturing device **22** is in communication with the electronic device **21**. The image capturing device **22** is used for shooting a scene to acquire a scene image P**1** or shooting the user X to acquire a user image P**2**. The display device **23** is connected with the electronic device **21** for displaying the scene image P**1**, the user image P**2** and a game character **200** corresponding to the gaming software **20**. The recognition module **24** is connected with the electronic device **21**. After the operating command is received and recognized by the recognition module **24**, an operating signal S**1** corresponding to the operating command is transmitted from the recognition module **24** to the electronic device **21**. According to the operating signal S**1**, the game character **200** in the scene image P**1** performs a corresponding action. In an embodiment, the display device **23** is a display screen.

[0018] As shown in FIG. **2**, the recognition module **24** comprises a database **241**. In addition, plural predetermined commands (not shown) are stored in the database **241**. When receiving the operating command, the recognition module **24** compares the operating command with the plural predetermined commands in the database **241**. Moreover, the recognition module **24** judges whether the operating command complies with at least one of the plural predetermined commands. According to the judging result, the recognition module **24** performs a corresponding operation. For example, if the recognition module **24** judges that the operating command complies with at least one of the plural predetermined commands, the operating signal S**1** corresponding to the operating command is transmitted from the recognition module **24** to the electronic device **21** in a network transmission manner. Whereas, if the recognition module **24** judges that the operating command does not comply with all of the plural predetermined commands, the recognition module **24** issues a prompt signal S**2** to the electronic device **21** in the network transmission manner in order to prompt the user X to provide the operating command again.

[0019] In this embodiment, the recognition module **24** is installed in a network N. In addition, the recognition module **24** is in wireless communication with the electronic device **21** through network connection. It is noted that numerous modifications may be made while retaining the teachings of the present invention. For example, in another embodiment, the recognition module is disposed within the electronic device and connected with the electronic device through wired connection.

[0020] The electronic device **21** further comprises a microphone **211**. The microphone **211** is disposed within the electronic device **21**. The microphone **211** may receive the operating command from the user X. In an embodiment, the operating command is issued to the microphone **211** of the electronic device **21** in a form of a sound. Then, the received operating command is further transmitted from the electronic device **21** to the recognition module **24**. The recognition module **24** recognizes the operating command through a sound recognition technology. On the other hand, the display device **23** comprises a touch module **231**. When the touch module **231** is touched by the user, a corresponding operating command is generated. Then, operating command is transmitted from the display device **23** to the electronic device **21**. After receiving the operating command, the recognition module **24** recognizes the operating command through a touch signal recognition technology. Due to the arrangement of the touch module **231**, the display device **23** may be considered as a touch screen.

[0021] In an embodiment, the display device **23** and the microphone **211** are integrated into the electronic device **21**, and the electronic device **21** is a smart phone or a tablet computer. It is noted that numerous modifications and alterations may be made while retaining the teachings of the invention. For example, in another embodiment, the display device and the microphone are externally connected with the electronic device, and the electronic device is a game console.

[0022] As mentioned above, the electronic device **21** can be used as a component for receiving the operating command. In some other embodiments, the operating command are obtained through the image capturing device **22**. A process of obtaining the operating command through the image capturing device **22** will be described as follows.

[0023] At the time when the image capturing device **22** acquires the user image P**2**, the operating command is also obtained and transmitted to the electronic device **21**. Then, the operating command is transmitted from the electronic device **21** to the recognition module **24**. Then, the recognition module **24** recognizes the gesture of the user image P**2**. If the recognition module **24** judges that the gesture of the user image P**2** complies with at least one of the plural predetermined commands in the database **241**, the gesture of the user image P**2** is determined as an operating command by the recognition module **24**. Then, the operating command or the recognition result notification is transmitted from the recognition module **24** to the electronic device **21**. Consequently, the electronic device **21** controls the game character **200** to perform the action according to the operating command.

[0024] In an embodiment, the image capturing device **22** is a camera or a video camera. Moreover, the image cap-

turing device **22** is in communication with the electronic device **21** through a wireless communication technology (e.g., through a Wi-Fi or Bluetooth technology). It is noted that numerous modifications or alternations may be made while retaining the teachings of the present invention. For example, in another embodiment, the image capturing device is connected with the electronic device through a connecting wire. Alternatively, the image capturing device is a built-in camera module of the electronic device. Preferably, the image capturing device is a panoramic camera to provide a wider range of scene image, and thus the richness and interesting efficacy of playing the game are enhanced.

[0025] The operations of the interactive gaming system **2** will be illustrated as follows. For example, the interactive gaming system **2** is operated to play a pet game. Please refer to FIGS. **2** and **3**. FIG. **3** schematically illustrates a screen image shown on the display device of the interactive gaming system according to the embodiment of the present invention when the gaming software is executed. Before the interactive gaming system **2** is enabled, the image capturing device **22** and the electronic device **21** are placed in a scene. After the interactive gaming system **2** is enabled, the image capturing device **22** shoots the scene to acquire the scene image P**1**. The scene image P**1** is transmitted to the display device **23** through the electronic device **21**. Consequently, the scene image P**1** is shown on the display device **23**. As shown in FIG. **3**, the scene image P**1** contains an object image P**3** (e.g., the image of a sofa). Then, the gaming software **20** is executed in the electronic device **21**, and the game is started. After the game is started, the game character **200** (i.e., the pet) corresponding to the gaming software **20** is activated. Hereinafter, some gaming scenarios will be described.

[0026] In a first gaming scenario, the operating command is issued in a form of a sound. For example, the user X calls the name of the pet. Meanwhile, the user X provides an audio-type operating command. After the microphone **211** of the electronic device **21** receives the audio-type operating command, the operating command is transmitted to the recognition module **24** in the network transmission manner. The recognition module **24** recognizes the operating command through a sound recognition technology. It is assumed that a predetermined command corresponding to the name of the pet has been stored in the database **241** of the recognition module **24**. Consequently, the recognition module **24** judges that the operating command complies with the predetermined command. Meanwhile, the operating signal S**1** corresponding to the operating command is transmitted from the recognition module **24** to the electronic device **21** in the network transmission manner. According to the operating signal S**1**, the electronic device **21** controls the game character **200** to enter the scene image P**1** from the outside of the scene image P**1**. As shown in FIG. **4**, the game character **200** appears in the scene image P**1** after the user X calls the name of the pet.

[0027] In case that the sound volume of the audio-type operating command is too low or the sound of the audio-type operating command is blurred, the recognition module **24** judges that the operating command does not comply with all of the plural predetermined commands. Meanwhile, the recognition module **24** issues a prompt signal S**2** to the electronic device **21** in the network transmission manner. For example, the prompt signal S**2** is a sound prompt signal or an image prompt signal for prompting the user X to provide the operating command again.

[0028] In a second gaming scenario, the operating command is issued in a form of a gesture. After the scene image P**1** is shown on the display device **23**, the user X enters the scene and sits on a sofa in the scene. Meanwhile, the image capturing device **22** acquires the user image P**2**. As shown in FIG. **5**, the user image P**2** sitting on the object image P**3** of the scene image P**1** is shown on the display device **23**. In case that the user X creates an action of tapping the sofa, the image capturing device **22** acquires the user image P**2** containing the operating command according to the action of the user X. In other words, the gesture of tapping the sofa in the user image P**2** is the operating command.

[0029] Then, the operating command is transmitted from the image capturing device **22** to the recognition module **24** through the electronic device **21** in the network transmission manner. The recognition module **24** recognizes the operating command through a gesture recognition technology. It is assumed that a predetermined command corresponding to the tapping gesture has been stored in the database **241** of the recognition module **24**. Consequently, the recognition module **24** judges that the operating command complies with the predetermined command.

[0030] Meanwhile, the operating signal S**1*** corresponding to the operating command is transmitted from the recognition module **24** to the electronic device **21** in the network transmission manner. According to the operating signal S**1***, the electronic device **21** controls the game character **200** to enter the scene image P**1** and sit on the object image P**3**. As shown in FIG. **6**, the game character **200** sits beside the user image P**2**. In case that the gesture of the user X is created very fast or the gesture is not clear, the recognition module **24** is unable to recognize the gesture. Meanwhile, the subsequent process is similar to that of the first gaming scenario, and is not redundantly described herein.

[0031] The following three aspects should be specially described. Firstly, the operations of the touch module to play games are similar to the conventional technology, and are not redundantly described herein. Secondly, the interactive gaming system of the above embodiment comprises both of the touch module and the microphone. It is noted that at least one component for receiving the operating command is feasible. For example, in another embodiment, the interactive gaming system is not equipped with the touch module and the microphone. Under this circumstance, the image capturing device is the only component for receiving the operating command from the user. Thirdly, in the interactive gaming system of the present invention, the type of the gaming software and the types of the gaming scenarios are not restricted. In the above embodiment, two gaming scenarios are taken as the examples for describing the operations of the interactive gaming system. It is noted that the types of the operating command and the gaming software for providing the interaction between the user and the game character are not restricted.

[0032] From the above descriptions, the present invention provides the interactive gaming system. The image capturing device acquires the user image corresponding to the user. The user image is shown on the display device. Moreover, the operating command from the user is obtained through the electronic device or the image capturing device. Afterwards, the operating command is recognized by the recog-

nition module. According to the recognition result of the recognition module, the game character in the gaming software performs a corresponding action. Consequently, the user can see that the user image and the game character are simultaneously shown on the same screen image of the display device. Moreover, the game character can perform the corresponding action according to the sound or gesture of the user. When compared with the conventional technology of using the joystick or the operation controller to play games, the interactive gaming system of the present invention allows the user to have the feel in the virtual situation and provides highly interesting efficacy to the user.

[0033] While the invention has been described in terms of what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention needs not be limited to the disclosed embodiment. On the contrary, it is intended to cover various modifications and similar arrangements included within the spirit and scope of the appended claims which are to be accorded with the broadest interpretation so as to encompass all such modifications and similar structures.

What is claimed is:

1. An interactive gaming system, comprising:

an electronic device executing a gaming software and receiving an operating command from a user;

an image capturing device in communication with the electronic device, wherein the image capturing device shoots a scene to acquire a scene image, or the image capturing device shoots the user to acquire a user image;

a display device connected with the electronic device, wherein the scene image, the user image and a game character corresponding to the gaming software are displayed on the display device; and

a recognition module connected with the electronic device, wherein after the recognition module receives and recognizes the operating command, an operating signal corresponding to the operating command is transmitted from the recognition module to the electronic device, and the game character in the scene image performs a corresponding action according to the operating signal.

2. The interactive gaming system according to claim **1**, wherein the recognition module comprises a database, and plural predetermined commands are stored in the database, wherein when the recognition module receives the operating command, the recognition module compares the operating command with the plural predetermined commands in the database, wherein if the recognition module judges that the operating command complies with at least one of the plural predetermined commands, the operating signal corresponding to the operating command is transmitted from the recognition module to the electronic device, wherein if the recognition module judges that the operating command does not comply with all of the plural predetermined commands, the recognition module issues a prompt signal to the electronic device.

3. The interactive gaming system according to claim **2**, wherein the recognition module is installed in a network, and the recognition module is in wireless communication with the electronic device through network connection.

4. The interactive gaming system according to claim **2**, wherein the recognition module is disposed within the electronic device and connected with the electronic device through wired connection.

5. The interactive gaming system according to claim **1**, wherein when a gesture corresponding to the operating command is contained in the user image, the operating command is transmitted from the image capturing device to the electronic device, wherein the recognition module recognizes the operating command according to a result of recognizing the gesture of the user image.

6. The interactive gaming system according to claim **1**, wherein the electronic device comprises a microphone to receive the operating command, wherein the operating command is issued to the microphone of the electronic device in a form of a sound, and the recognition module recognizes the operating command through a sound recognition technology.

7. The interactive gaming system according to claim **1**, wherein the display device comprises a touch module, wherein when the touch module is touched by the user, the operating command is generated and the operating command is transmitted from the display device to the electronic device, wherein the recognition module recognizes the operating command through a touch signal recognition technology.

8. The interactive gaming system according to claim **7**, wherein the display device is integrated into the electronic device, and the electronic device is a game console, a smart phone or a tablet computer.

9. The interactive gaming system according to claim **1**, wherein the image capturing device is a camera, a video camera or a panoramic camera.

10. The interactive gaming system according to claim **1**, wherein the image capturing device is in communication with the electronic device through wired connection or wireless connection.

* * * * *