United States Patent	12389058
Kind Code	B2
Date of Patent	August 12, 2025
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Mobile terminal and display system

Abstract

A mobile terminal according to an embodiment of the present disclosure may comprise a NFC module configured to transmit a Near Field Communication (NFC) tagging signal to a remote control device and receive wireless connection information in response to the tagging signal, a Wi-Fi module configured to perform a Wi-Fi connection with a display device using the wireless connection information, and a processor configured to transmit an action request for interworking with the mobile terminal to the display device if the mobile terminal is connected to the display device via Wi-Fi.

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Appl. No.: **18/270831**

Filed (or PCT Filed): **January 04, 2021**

PCT No.: **PCT/KR2021/000018**

PCT Pub. No.: **WO2022/145553**

PCT Pub. Date: July 07, 2022

Prior Publication Data

Document Identifier	Publication Date
US 20240073470 A1	Feb. 29, 2024

Publication Classification

Int. Cl.: **H04N21/41** (20110101); **H04N21/4363** (20110101)

U.S. Cl.:

CPC **H04N21/41265** (20200801); **H04N21/4122** (20130101); **H04N21/43637** (20130101);

Field of Classification Search

CPC: H04N (21/41265); H04N (21/4122); H04N (21/43637); H04N (21/41407); H04N (21/42204); H04N (21/4222); H04N (21/43078); H04N (21/43615); H04M (2250/04); H04M (1/72415)

USPC: 348/734

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS

(1) This application is the National Stage filing under 35 U.S.C. 371 of International Application No. PCT/KR2021/000018, filed on Jan. 4, 2021, the contents of which are all incorporated by reference herein in their entireties.

TECHNICAL FIELD

(2) The present invention relates to a mobile terminal and a display system.

BACKGROUND ART

(3) A digital TV service using a wired or wireless communication network is becoming common. The digital TV service can provide various services that could not be provided in the existing analog broadcasting service.

(4) For example, IPTV (Internet Protocol Television), a type of digital TV service, and smart TV service provide bi-directionality that allows users to actively select the type of program to watch and the viewing time. IPTV and smart TV services may provide various additional services, such as Internet search, home shopping, and online games, based on this interactive nature.

(5) That is, recent TVs are provided with a function for interaction between a smart phone and a TV through Near Field Communication (NFC) tagging.

(6) However, functions according to NFC tagging are limited to some functions designated by manufacturers.

(7) In addition, since data that can be stored in the NFC tag is very limited, there is a problem in that various function settings are not possible.

DISCLOSURE

Technical Problem

(8) An object of the present disclosure is to provide various functions between a smart phone and a display device through NFC tagging.

(9) An object of the present disclosure is to define an operation through tagging without storing data in an NFC tag.

Technical Solution

(10) A mobile terminal according to an embodiment of the present disclosure may comprise a NFC module configured to transmit a Near Field Communication (NFC) tagging signal to a remote control device and receive wireless connection information in response to the tagging signal, a Wi-Fi module configured to perform a Wi-Fi connection with a display device using the wireless connection information, and a processor configured to transmit an action request for interworking with the mobile terminal to the display device if the mobile terminal is connected to the display device via Wi-Fi.

(11) According to an embodiment of the present disclosure a display system including a display device, a remote control device and a mobile terminal, wherein the display device transmits wireless connection information to the remote control device, the mobile terminal transmits an NFC tagging signal to the remote control device, and receives the wireless connection information from the remote control device in response to the NFC tagging signal, performs a wireless connection with the display device based on the received wireless connection information, transmits an action request for an interworking function to the display device as the wireless connection is performed.

Advantageous Effects

(12) According to various embodiments of the present disclosure, a user can set an NFC tagging operation with a simple manipulation while watching TV.

(13) In addition, application or channel frequently used by the user can be directly executed by tagging operation.

(14) In addition, any interlocking operation can be defined using the DB of the display device without storing additional data in the NFC tag.

(15) In addition, the user may store a plurality of actions in the DB of the display device and select a function to be executed in the mobile terminal.
(16) In addition, various functions can be additionally defined for each application as well as application execution through NFC interworking function setting.

Description

DESCRIPTION OF DRAWINGS
(1) FIG. **1** is a block diagram illustrating a configuration of a display device according to an embodiment of the present disclosure.
(2) FIG. **2** is a block diagram illustrating a remote control device according to an embodiment of the present invention.
(3) FIG. **3** is a view illustrating an actual configuration of a remote control device according to an embodiment of the present invention.
(4) FIG. **4** is a view of utilizing a remote control device according to an embodiment of the present invention.
(5) FIG. **5** is a diagram explaining the configuration of a wireless system according to an embodiment of the present invention.
(6) FIG. **6** is a block diagram illustrating the configuration of a mobile terminal according to an embodiment of the present invention.
(7) FIG. **7** is a ladder diagram for a method of operating a system according to an embodiment of the present invention.
(8) FIGS. **8**A and **8**B are diagrams illustrating an example of providing content registration information as a mobile terminal is tagged with a remote control device according to an embodiment of the present disclosure.
(9) FIG. **9** is a diagram illustrating a process of setting and executing an NFC dynamic action according to an embodiment of the present disclosure.
(10) FIG. **10** is a flowchart illustrating a method of operating a display system according to another exemplary embodiment of the present disclosure.
(11) FIG. **11** is a diagram illustrating a process of setting and executing an NFC dynamic action according to another embodiment of the present disclosure.
(12) FIG. **12** is a diagram illustrating a screen displayed on a mobile terminal if the mobile terminal is tagged with a remote control device according to an embodiment of the present disclosure.
(13) FIG. **13** is a diagram illustrating a screen displayed on a display device if a mobile terminal is tagged with a remote control device according to another embodiment of the present disclosure.
(14) FIGS. **14**A and **14**B are diagrams for explaining an example of sharing a URL between a mobile terminal and a display device according to an NFC interworking function.
(15) FIGS. **15**A to **15**C are diagrams for explaining that an interworking function between a mobile terminal and a display device varies based on the number of times of NFC tagging according to an embodiment of the present disclosure.
(16) FIGS. **16**A to **17**B are diagrams illustrating an NFC interworking function between a mobile terminal and a display device according to another embodiment of the present disclosure.
BEST MODE
(17) Hereinafter, embodiments relating to the present disclosure will be described in detail with reference to the drawings. The suffixes “module” and “unit” for components used in the description below are assigned or mixed in consideration of easiness in writing the specification and do not have distinctive meanings or roles by themselves.
(18) A display device according to an embodiment of the present invention, for example, as an artificial display device that adds a computer supporting function to a broadcast receiving function,

can have an easy-to-use interface such as a writing input device, a touch screen, or a spatial remote control device as an Internet function is added while fulfilling the broadcast receiving function. Then, with the support of a wired or wireless Internet function, it is possible to perform an e-mail, web browsing, banking, or game function in access to Internet and computers. In order to perform such various functions, standardized general purpose OS can be used.

(19) Accordingly, since various applications are freely added or deleted on a general purpose OS kernel, a display device described herein, for example, can perform various user-friendly functions. The display device, in more detail, can be a network TV, Hybrid Broadcast Broadband TV (HBBTV), smart TV, light-emitting diode (LED) TV, organic light-emitting diode (OLED) TV, and so on and in some cases, can be applied to a smartphone.

(20) FIG. **1** is a block diagram illustrating a configuration of a display device according to an embodiment of the present invention.

(21) Referring to FIG. **1**, a display device **100** can include a broadcast reception unit **130**, an external device interface unit **135**, a storage unit **140**, a user interface unit **150**, a control unit **170**, a wireless communication unit **173**, a display unit **180**, an audio output unit **185**, and a power supply unit **190**.

(22) The broadcast reception unit **130** can include a tuner **131**, a demodulation unit **132**, and a network interface unit **133**.

(23) The tuner **131** can select a specific broadcast channel according to a channel selection command. The tuner **131** can receive broadcast signals for the selected specific broadcast channel.

(24) The demodulation unit **132** can divide the received broadcast signals into video signals, audio signals, and broadcast program related data signals and restore the divided video signals, audio signals, and data signals to an output available form.

(25) The external device interface unit **135** can receive an application or an application list in an adjacent external device and deliver it to the control unit **170** or the storage unit **140**.

(26) The external device interface unit **135** can provide a connection path between the display device **100** and an external device. The external device interface unit **135** can receive at least one an image or audio output from an external device that is wirelessly or wiredly connected to the display device **100** and deliver it to the control unit **170**. The external device interface unit **135** can include a plurality of external input terminals. The plurality of external input terminals can include an RGB terminal, at least one High Definition Multimedia Interface (HDMI) terminal, and a component terminal.

(27) An image signal of an external device input through the external device interface unit **135** can be output through the display unit **180**. A sound signal of an external device input through the external device interface unit **135** can be output through the audio output unit **185**.

(28) An external device connectable to the external device interface unit **135** can be one of a set-top box, a Blu-ray player, a DVD player, a game console, a sound bar, a smartphone, a PC, a USB Memory, and a home theater system, but this is just exemplary.

(29) The network interface unit **133** can provide an interface for connecting the display device **100** to a wired/wireless network including the Internet network. The network interface unit **133** can transmit or receive data to or from another user or another electronic device through an accessed network or another network linked to the accessed network.

(30) Additionally, some content data stored in the display device **100** can be transmitted to a user or an electronic device, which is selected from other users or other electronic devices pre-registered in the display device **100**.

(31) The network interface unit **133** can access a predetermined webpage through an accessed network or another network linked to the accessed network. That is, the network interface unit **133** can transmit or receive data to or from a corresponding server by accessing a predetermined webpage through the network.

(32) Then, the network interface unit **133** can receive contents or data provided from a content

provider or a network operator. That is, the network interface unit **133** can receive contents such as movies, advertisements, games, VODs, and broadcast signals, which are provided from a content provider or a network provider, through network and information relating thereto.
(33) Additionally, the network interface unit **133** can receive firmware update information and update files provided from a network operator and transmit data to an Internet or content provider or a network operator.
(34) The network interface unit **133** can select and receive a desired application among applications open to the air, through network.
(35) The storage unit **140** can store signal-processed image, voice, or data signals stored by a program in order for each signal processing and control in the control unit **170**.
(36) Additionally, the storage unit **140** can perform a function for temporarily storing image, voice, or data signals output from the external device interface unit **135** or the network interface unit **133** and can store information on a predetermined image through a channel memory function.
(37) The storage unit **140** can store an application or an application list input from the external device interface unit **135** or the network interface unit **133**.
(38) The display device **100** can play content files (for example, video files, still image files, music files, document files, application files, and so on) stored in the storage unit **140** and provide them to a user.
(39) The user interface unit **150** can deliver signals input by a user to the control unit **170** or deliver signals from the control unit **170** to a user. For example, the user interface unit **150** can receive or process control signals such as power on/off, channel selection, and screen setting from the remote control device **200** or transmit control signals from the control unit **170** to the remote control device **200** according to various communication methods such as Bluetooth, Ultra Wideband (WB), ZigBee, Radio Frequency (RF), and IR.
(40) Additionally, the user interface unit **150** can deliver, to the control unit **170**, control signals input from local keys (not shown) such as a power key, a channel key, a volume key, and a setting key.
(41) Image signals that are image-processed in the control unit **170** can be input to the display unit **180** and displayed as an image corresponding to corresponding image signals. Additionally, image signals that are image-processed in the control unit **170** can be input to an external output device through the external device interface unit **135**.
(42) Voice signals processed in the control unit **170** can be output to the audio output unit **185**. Additionally, voice signals processed in the control unit **170** can be input to an external output device through the external device interface unit **135**.
(43) Besides that, the control unit **170** can control overall operations in the display device **100**. Additionally, the control unit **170** can control the display device **100** by a user command or internal program input through the user interface unit **150** and download a desired application or application list into the display device **100** in access to network.
(44) The control unit **170** can output channel information selected by a user together with processed image or voice signals through the display unit **180** or the audio output unit **185**.
(45) Additionally, according to an external device image playback command received through the user interface unit **150**, the control unit **170** can output image signals or voice signals of an external device such as a camera or a camcorder, which are input through the external device interface unit **135**, through the display unit **180** or the audio output unit **185**.
(46) Moreover, the control unit **170** can control the display unit **180** to display images and control broadcast images input through the tuner **131**, external input images input through the external device interface unit **135**, images input through the network interface unit, or images stored in the storage unit **140** to be displayed on the display unit **180**. In this case, an image displayed on the display unit **180** can be a still image or video and also can be a 2D image or a 3D image.
(47) Additionally, the control unit **170** can play content stored in the display device **100**, received

broadcast content, and external input content input from the outside, and the content can be in various formats such as broadcast images, external input images, audio files, still images, accessed web screens, and document files.

(48) Moreover, the wireless communication unit **173** can perform a wired or wireless communication with an external electronic device. The wireless communication unit **173** can perform short-range communication with an external device. For this, the wireless communication unit **173** can support short-range communication by using at least one of Bluetooth™, Radio Frequency Identification (RFID), Infrared Data Association (IrDA), Ultra Wideband (UWB), ZigBee, Near Field Communication (NFC), Wireless-Fidelity (Wi-Fi), Wi-Fi Direct, and Wireless Universal Serial Bus (USB) technologies. The wireless communication unit **173** can support wireless communication between the display device **100** and a wireless communication system, between the display device **100** and another display device **100**, or between networks including the display device **100** and another display device **100** (or an external server) through wireless area networks. The wireless area networks can be wireless personal area networks.

(49) Herein, the other display device **100** can be a mobile terminal such as a wearable device (for example, a smart watch, a smart glass, and a head mounted display (HMD)) or a smartphone, which is capable of exchanging data (or interworking) with the display device **100**. The wireless communication unit **173** can detect (or recognize) a communicable wearable device around the display device **100**. Furthermore, if the detected wearable device is a device authenticated to communicate with the display device **100**, the control unit **170** can transmit at least part of data processed in the display device **100** to the wearable device through the wireless communication unit **173**. Accordingly, a user of the wearable device can use the data processed in the display device **100** through the wearable device.

(50) The display unit **180** can convert image signals, data signals, or on-screen display (OSD) signals, which are processed in the control unit **170**, or images signals or data signals, which are received in the external device interface unit **135**, into R, G, and B signals to generate driving signals.

(51) Furthermore, the display device **100** shown in FIG. **1** is just one embodiment of the present invention and thus, some of the components shown can be integrated, added, or omitted according to the specification of the actually implemented display device **100**.

(52) That is, if necessary, two or more components can be integrated into one component or one component can be divided into two or more components and configured. Additionally, a function performed by each block is to describe an embodiment of the present invention and its specific operation or device does not limit the scope of the present invention.

(53) According to another embodiment of the present invention, unlike FIG. **1**, the display device **100** can receive images through the network interface unit **133** or the external device interface unit **135** and play them without including the tuner **131** and the demodulation unit **132**.

(54) For example, the display device **100** can be divided into an image processing device such as a set-top box for receiving broadcast signals or contents according to various network services and a content playback device for playing contents input from the image processing device.

(55) In this case, an operating method of a display device according to an embodiment of the present invention described below can be performed by one of the display device described with reference to FIG. **1**, an image processing device such as the separated set-top box, and a content playback device including the display unit **180** and the audio output unit **185**.

(56) Then, referring to FIGS. **2** and **3**, a remote control device is described according to an embodiment of the present invention.

(57) FIG. **2** is a block diagram illustrating a remote control device according to an embodiment of the present invention and FIG. **3** is a view illustrating an actual configuration of a remote control device according to an embodiment of the present invention.

(58) First, referring to FIG. **2**, a remote control device **200** can include a fingerprint recognition

unit **210**, a wireless communication unit **220**, a user input unit **230**, a sensor unit **240**, an output unit **250**, a power supply unit **260**, a storage unit **270**, a control unit **280**, and a sound acquisition unit **290**.

(59) Referring to FIG. **2**, the wireless communication unit **220** transmits/receives signals to/from an arbitrary any one of display devices according to the above-mentioned embodiments of the present invention.

(60) The remote control device **200** can include a radio frequency (RF) module **221** for transmitting/receiving signals to/from the display device **100** according to the RF communication standards and an IR module **223** for transmitting/receiving signals to/from the display device **100** according to the IR communication standards. Additionally, the remote control device **200** can include a Bluetooth module **225** for transmitting/receiving signals to/from the display device **100** according to the Bluetooth communication standards. Additionally, the remote control device **200** can include a Near Field Communication (NFC) module **227** for transmitting/receiving signals to/from the display device **100** according to the NFC communication standards and a WLAN module **229** for transmitting/receiving signals to/from the display device **100** according to the Wireless LAN (WLAN) communication standards.

(61) Additionally, the remote control device **200** can transmit signals containing information on a movement of the remote control device **200** to the display device **100** through the wireless communication unit **220**.

(62) Moreover, the remote control device **200** can receive signals transmitted from the display device **100** through the RF module **221** and if necessary, can transmit a command on power on/off, channel change, and volume change to the display device **100** through the IR module **223**.

(63) The user input unit **230** can be configured with a keypad button, a touch pad, or a touch screen. A user can manipulate the user input unit **230** to input a command relating to the display device **100** to the remote control device **200**. If the user input unit **230** includes a hard key button, a user can input a command relating to the display device **100** to the remote control device **200** through the push operation of the hard key button. This will be described with reference to FIG. **3**.

(64) Referring to FIG. **3**, the remote control device **200** can include a plurality of buttons. The plurality of buttons can include a fingerprint recognition button **212**, a power button **231**, a home button **232**, a live button **233**, an external input button **234**, a voice adjustment button **235**, a voice recognition button **236**, a channel change button **237**, a check button **238**, and a back button **239**.

(65) The fingerprint recognition button **212** can be a button for recognizing a user's fingerprint. According to an embodiment of the present invention, the fingerprint recognition button **212** can perform a push operation and receive a push operation and a fingerprint recognition operation. The power button **231** can be button for turning on/off the power of the display device **100**. The home button **232** can be a button for moving to the home screen of the display device **100**. The live button **233** can be a button for displaying live broadcast programs. The external input button **234** can be a button for receiving an external input connected to the display device **100**. The voice adjustment button **235** can be a button for adjusting the size of a volume output from the display device **100**. The voice recognition button **236** can be a button for receiving user's voice and recognizing the received voice. The channel change button **237** can be a button for receiving broadcast signals of a specific broadcast channel. The check button **238** can be a button for selecting a specific function and the back button **239** can be a button for returning to a previous screen.

(66) Again, referring to FIG. **2**, if the user input unit **230** includes a touch screen, a user can touch a soft key of the touch screen to input a command relating to the display device **100** to the remote control device **200**. Additionally, the user input unit **230** can include various kinds of input means manipulated by a user, for example, a scroll key and a jog key, and this embodiment does not limit the scope of the present invention.

(67) The sensor unit **240** can include a gyro sensor **241** or an acceleration sensor **243** and the gyro

sensor **241** can sense information on a movement of the remote control device **200**.
(68) For example, the gyro sensor **241** can sense information on an operation of the remote control device **200** on the basis of x, y, and z axes and the acceleration sensor **243** can sense information on a movement speed of the remote control device **200**. Moreover, the remote control device **200** can further include a distance measurement sensor and sense a distance with respect to the display unit **180** of the display device **100**.
(69) The output unit **250** can output image or voice signals in response to manipulation of the user input unit **230** or image or voice signals corresponding to signals transmitted from the display device **100**. A user can recognize whether the user input unit **230** is manipulated or the display device **100** is controlled through the output unit **250**.
(70) For example, the output unit **250** can include an LED module **251** for flashing, a vibration module **253** for generating vibration, a sound output module **255** for outputting sound, or a display module **257** for outputting an image, if the user input unit **230** is manipulated or signals are transmitted/received to/from the display device **100** through the wireless communication unit **220**.
(71) Additionally, the power supply unit **260** supplies power to the remote control device **200** and if the remote control device **200** does not move for a predetermined time, stops the power supply, so that power waste can be reduced. The power supply unit **260** can resume the power supply if a predetermined key provided at the remote control device **200** is manipulated.
(72) The storage unit **270** can store various kinds of programs and application data necessary for control or operation of the remote control device **200**. If the remote control device **200** transmits/receives signals wirelessly through the display device **100** and the RF module **221**, the remote control device **200** and the display device **100** transmits/receives signals through a predetermined frequency band.
(73) The control unit **280** of the remote control device **200** can store, in the storage unit **270**, information on a frequency band for transmitting/receiving signals to/from the display device **100** paired with the remote control device **200** and refer to it.
(74) The control unit **280** controls general matters relating to control of the remote control device **200**. The control unit **280** can transmit a signal corresponding to a predetermined key manipulation of the user input unit **230** or a signal corresponding to movement of the remote control device **200** sensed by the sensor unit **240** to the display device **100** through the wireless communication unit **220**.
(75) Additionally, the sound acquisition unit **290** of the remote control device **200** can obtain voice. The sound acquisition unit **290** can include at least one microphone and obtain voice through the microphone **291**.
(76) FIG. **4** is a view of utilizing a remote control device according to an embodiment of the present invention. FIG. **4**(*a*) illustrates that a pointer **205** corresponding to the remote control device **200** is displayed on the display unit **180**.
(77) A user can move or rotate the remote control device **200** vertically or horizontally. The pointer **205** displayed on the display unit **180** of the display device **100** corresponds to a movement of the remote control device **200**. Since the corresponding pointer **205** is moved and displayed according to a movement on a 3D space as show in the drawing, the remote control device **200** can be referred to as a spatial remote control device.
(78) FIG. **4**(*b*) illustrates that if a user moves the remote control device **200**, the pointer **205** displayed on the display unit **180** of the display device **100** is moved to the left according to the movement of the remote control device **200**.
(79) Information on a movement of the remote control device **200** detected through a sensor of the remote control device **200** is transmitted to the display device **100**. The display device **100** can calculate the coordinates of the pointer **205** from the information on the movement of the remote control device **200**. The display device **100** can display the pointer **205** to match the calculated coordinates.

(80) FIG. **4**(*c*) illustrates that while a specific button in the remote control device **200** is pressed, a user moves the remote control device **200** away from the display unit **180**. Thus, a selection area in the display unit **180** corresponding to the pointer **205** can be zoomed in and displayed larger.
(81) On the other hand, if a user moves the remote control device **200** close to the display unit **180**, a selection area in the display unit **180** corresponding to the pointer **205** can be zoomed out and displayed in a reduced size.
(82) On the other hand, if the remote control device **200** is moved away from the display unit **180**, a selection area can be zoomed out and if the remote control device **200** is moved closer to the display unit **180**, a selection area can be zoomed in.
(83) Additionally, if a specific button in the remote control device **200** is pressed, recognition of a vertical or horizontal movement can be excluded. That is, if the remote control device **200** is moved away from or closer to the display unit **180**, the up, down, left, or right movement cannot be recognized and only the back and forth movement can be recognized. While a specific button in the remote control device **200** is not pressed, only the pointer **205** is moved according to the up, down, left or right movement of the remote control device **200**.
(84) Moreover, the moving speed or moving direction of the pointer **205** can correspond to the moving speed or moving direction of the remote control device **200**.
(85) Furthermore, a pointer in this specification means an object displayed on the display unit **180** in response to an operation of the remote control device **200**. Accordingly, besides an arrow form displayed as the pointer **205** in the drawing, various forms of objects are possible. For example, the above concept includes a point, a cursor, a prompt, and a thick outline. Then, the pointer **205** can be displayed in correspondence to one point of a horizontal axis and a vertical axis on the display unit **180** and also can be displayed in correspondence to a plurality of points such as a line and a surface.
(86) FIG. **5** is a block diagram illustrating the configuration of a mobile terminal according to an embodiment of the present invention.
(87) The mobile terminal **500** includes a projector, a mobile phone, a smart phone, a desktop computer, a laptop computer, a digital broadcast terminal, a personal digital assistant (PDA), a portable multimedia player (PMP), a navigation device, a tablet PC, a wearable device, a set-top box (STB), It may be implemented as a fixed device or a movable device such as a DMB receiver, a radio, or a desktop computer.
(88) Referring to FIG. **5**, a mobile terminal **500** may include a communication circuit **510**, an input unit **520**, a memory **530**, a display **540**, and a processor **590**.
(89) The communication circuit **510** may transmit/receive data with external devices such as other mobile terminals or servers using wired/wireless communication technology.
(90) The communication circuit **510** may perform communication using any one of communication standards among GSM (Global System for Mobile communication), CDMA (Code Division Multi Access), LTE (Long Term Evolution), 5G, WLAN (Wireless LAN), Wi-Fi (Wireless-Fidelity), Bluetooth, Radio Frequency Identification (RFID), Infrared Data Association (IrDA), ZigBee, and Near Field Communication (NFC).
(91) The input unit **520** may include a camera for inputting a video signal, a microphone for receiving an audio signal, and a user input unit for receiving information from a user.
(92) Here, a camera or microphone may be treated as a sensor, and signal obtained from the camera or microphone may be referred to as sensing data or sensor information.
(93) The memory **530** may store various software and data related to the operation of the mobile terminal **100**.
(94) The display **540** may display an image signal received from the outside.
(95) The processor **590** may control overall operations of the mobile terminal **100**.
(96) The processor **590** may generate a control signal for controlling the external device and transmit the generated control signal to the external device if an external device needs to be linked

to perform the operation of the mobile terminal **100**.
(97) The processor **590** may obtain intention information for a user input and determine a user's requirement based on the obtained intention information.
(98) The processor **590** may control at least some of the components of the mobile terminal **100** to drive an application program stored in the memory **530**.
(99) The processor **590** may combine and operate two or more of the components included in the mobile terminal **100** to drive the application program.
(100) Next, referring to FIG. **6**, a method of operating a system according to an embodiment of the present invention will be described.
(101) FIG. **6** is a flowchart illustrating an operation method of a display system according to an embodiment of the present invention.
(102) The display system may include a display device **100**, a remote control device **200** and a mobile terminal **500**.
(103) Referring to FIG. **6**, the control unit **170** of the display device **100** stores content registration information in the storage unit **140** (S**601**).
(104) In one embodiment, content registration information may include information about content to be executed through NFC tagging.
(105) A user may register one or more contents through manual setting.
(106) Content may include application installed in the display device **100**, channel (or channel number), video, image, web page, and setting item of the display device **100**.
(107) The setting item of the display device **100** may include one or more of brightness, sound, and Bluetooth connection.
(108) A plurality of content registration information may correspond to each of the plurality of mobile terminals. That is, one mobile terminal can be matched with one content registration information.
(109) If a plurality of mobile terminals exist in the home, content registration information may be stored to be matched to each mobile terminal. To this end, the content registration information may further include identification information for identifying the mobile terminal **500**.
(110) FIG. **7** is a diagram illustrating a content registration process according to an embodiment of the present disclosure.
(111) Referring to FIG. **7**, the display device **100** may display a content registration menu **700** for interworking with NFC on the display unit **180**.
(112) The display device **100** may display the content registration menu **700** through a user's voice command.
(113) As another example, the display device **100** may display the content registration menu **700** according to a request received from the remote control device **200**.
(114) The content registration menu **700** may include a plurality of content items **710** to **770**. For example, the first content item **710** is an item corresponding to an application, the second content item **730** is an item corresponding to a broadcasting channel, and the third content item **750** is an item corresponding to a web page and the fourth content item **770** may be a video item.
(115) The display device **100** may register each of the first to fourth content items **710** to **770** according to a user input.
(116) The display device **100** may store information about each content item in the storage unit **140**.
(117) The first content item **710** is an application item, and information about the content item may include an application ID and application parameter.
(118) The application parameter may be a parameter indicating information for reproducing specific content if the application is executed. For example, the application parameter may be a parameter for playing specific content in a video or content provider application, a specific website movement through a web application, or a parameter representing specific music reproduction in a

music application.
(119) The second content item **730** is a video item, and information about the content item may include a video ID and source information providing the video. Source information may include external device or website information.
(120) The third content item **750** is a channel item, and information on the content item may include a channel name and a channel number.
(121) The fourth content item **770** is a web page item, and information on the content item may include the address (URL) of the web page.
(122) In this way, the user may register a plurality of contents for NFC interworking through the content registration menu **700**. Registered information may be stored in the storage unit **140**.
(123) Again, FIG. **6** will be described.
(124) Then, the control unit **170** of the display device **100** transmits wireless connection information to the remote control device **200** (S**603**).
(125) In one embodiment, the wireless connection information may include a Wi-Fi address if the communication standard used is the Wi-Fi standard. The Wi-Fi address may be an address used for Wi-Fi connection between two devices.
(126) The remote control device **200** stores the wireless connection information received from the display device **100** (S**605**).
(127) Thereafter, the remote control device **200** receives a Near Field Communication (NFC) tagging signal from the mobile terminal **500** (S**607**), and transmits the stored wireless connection information to the mobile terminal **500** in response to the received NFC tagging signal (S**609**).
(128) The NFC tagging signal may be a signal for requesting information stored in the NFC module **227** provided in the remote control device **200**.
(129) Information stored in the NFC module **227** may include wireless connection information received from the display device **100**. The wireless connection information may include a Wi-Fi access address.
(130) A user may perform an NFC tagging operation by bringing the mobile terminal **500** to the remote control device **200**. According to the user's NFC tagging operation, the mobile terminal **500** may transmit an NFC tagging signal to the remote control device **200**.
(131) In another embodiment, the user may take an action of tagging the mobile terminal **500** to the display device **100**. In this case, the display device **100** may include an NFC module for NFC communication with the mobile terminal **500**.
(132) The remote control device **200** may transmit wireless connection information stored in the NFC module **227** to the mobile terminal **500** in response to the NFC tagging signal of the mobile terminal **500**.
(133) The wireless connection information can be used for the mobile terminal **500** to automatically establish a wireless connection with the display device **100**.
(134) The mobile terminal **500** may automatically establish a wireless connection with the display device **100** based on the wireless connection information received from the remote control device **200**.
(135) For example, the mobile terminal **500** may be connected to the display device **100** through the Wi-Fi standard using a Wi-Fi access address.
(136) The processor **590** of the mobile terminal **500** wirelessly connects to the display device **100** using the received wireless connection information (S**610**).
(137) The control unit **170** of the display device **100** receives the content registration information request received from the mobile terminal **500** (S**611**) and transmits the content registration information to the mobile terminal **500** according to the received content registration information request (S**613**).
(138) If a wireless connection with the mobile terminal **500** is established, the control unit **170** may receive a request for content registration information from the mobile terminal **500**.

(139) In one embodiment, the mobile terminal **500** may automatically transmit a content registration information request to the display device **100** after establishing a wireless connection with the display device **100**.
(140) In another embodiment, the mobile terminal **500** may transmit a content registration information request to the display device **100** through an application installed in the mobile terminal **500**.
(141) Here, the application installed in the mobile terminal **500** may be an application capable of controlling home appliance in the home through wireless communication.
(142) The control unit **170** of the display device **100** may transmit the content registration information stored in the storage unit **140** to the mobile terminal **500** in response to the content registration information request received from the mobile terminal **500**.
(143) The control unit **170** of the display device **100** may transmit content registration information to the mobile terminal **500** through a Wi-Fi module included in the wireless communication unit **173**.
(144) The processor **590** of the mobile terminal **500** transmits a content execution request requesting execution of any one of a plurality of contents to the display device **100** based on the content registration information received from the display device **100** (S**615**).
(145) The processor **590** of the mobile terminal **500** may receive a request for selecting one of a plurality of contents included in the content registration information and transmit a request for execution of the selected content to the display device **100**.
(146) Execution of the content may mean any one of content display, reproduction, tuning, and connection.
(147) The control unit **170** of the display device **100** executes the corresponding content according to the content execution request received from the mobile terminal **500** (S**617**).
(148) FIGS. **8**A and **8**B are diagrams illustrating an example of providing content registration information as a mobile terminal is tagged with a remote control device according to an embodiment of the present disclosure.
(149) Referring to FIG. **8**A, the remote control device **200** may include an NFC tag mark **201**. The NFC tag mark **201** may indicate a location for guiding the user's NFC tagging location. An NFC module may be embedded at the bottom of the NFC tag mark **201**.
(150) The user can bring the back of the mobile terminal **500** to the NFC tag mark **201**. Accordingly, the mobile terminal **500** may receive the Wi-Fi address through the NFC module of the remote control device **200**.
(151) The mobile terminal **500** may perform a Wi-Fi connection with the display device **100** using the Wi-Fi address.
(152) The mobile terminal **500** may request content registration information from the display device **100** after being connected to the display device **100** through Wi-Fi.
(153) As shown in FIG. **8**B, the mobile terminal **500** may display the content registration information **800** received from the display device **100** on the display **540**.
(154) The content registration information **800** may include a plurality of content items **801** to **809**.
(155) Each of the plurality of content items **801** to **809** may be an item previously stored in the display device **100** in step S**601** of FIG. **6**.
(156) The first content item **801** may be an item (application) representing a content provider.
(157) The second content item **803** may be an item representing a channel.
(158) The third content item **805** may be an item (thumbnail) representing a video playable through a video playback service.
(159) The fourth content item **807** may be an item representing an Internet application accessible to a web site.
(160) The fifth content item **809** may be an item for setting up a wireless connection.
(161) In addition, the content item may be a setting item capable of controlling output brightness of

the display unit **180**, sound of the display device **100**, and the like.
(162) When receiving a request for selecting the third content item **805**, the mobile terminal **500** may transmit it to the display device **100**.
(163) The display device **100** may reproduce the content video **810** corresponding to the third content item **805** on the display unit **180** according to the request received from the mobile terminal **500**.
(164) The display device **100** may reproduce the content image **810** using a content ID corresponding to the third content item **805** and source information providing the content.
(165) As described above, according to an embodiment of the present disclosure, the user can easily access the function of the display device **100** by simply tagging the mobile terminal **500** to the remote control device **200**.
(166) FIG. **9** is a diagram illustrating a process of setting and executing an NFC dynamic action according to an embodiment of the present disclosure.
(167) The NFC dynamic action may represent an action for performing an NFC interlocking function with only an NFC tagging operation.
(168) FIG. **9** is a diagram specifying the embodiment of FIG. **6**.
(169) The display device **100** may store a plurality of contents to be executed through NFC linkage according to a user input and content registration information including information of each content in the storage unit **140** (S**901**).
(170) The remote control device **200** may receive the Wi-Fi address from the user input interface unit **150** of the display device **100** (S**903**). The remote control device **200** and the display device **100** may communicate through a Bluetooth communication standard.
(171) To this end, each of the user input interface unit **150** and the remote control device **200** may include a Bluetooth communication circuit.
(172) The remote control device **200** may store the Wi-Fi address received from the display device **100** in the NFC module **227** (S**905**).
(173) If one of the plurality of mobile terminals **500-1** to **500-3** (**500-1**) is tagged with the remote control device **200** (S**907**), the remote control device **200** may transmit a Wi-Fi address to the corresponding terminal (S**909**).
(174) The mobile terminal **500-1** accesses the display device **100** using the Wi-Fi address and requests content registration information (S**911**).
(175) The control unit **170** of the display device **100** may read content registration information from the storage unit **140** and transmit the read content registration information to the corresponding mobile terminal **500-1** (S**913**).
(176) The mobile terminal **500-1** may transmit an execution request of any one of a plurality of contents included in the content registration information to the control unit **170** of the display device **100** (S**915**).
(177) The control unit **170** of the display device **100** may request the display unit **180** to execute the corresponding content according to the content execution request received from the mobile terminal **500-1** (S**917**).
(178) FIG. **10** is a flowchart illustrating a method of operating a display system according to another exemplary embodiment of the present disclosure.
(179) In FIG. **10**, the detailed description of the same configuration as that of FIG. **6** is replaced with the description of FIG. **6**.
(180) Referring to FIG. **6**, the control unit **170** of the display device **100** stores content registration information in the storage unit **140** (S**1001**).
(181) Then, the control unit **170** of the display device **100** transmits wireless connection information to the remote control device **200** (S**1003**).
(182) In one embodiment, the wireless connection information may include a Wi-Fi address if the communication standard used is the Wi-Fi standard. The Wi-Fi address may be an address used for

Wi-Fi connection between two devices.
(183) The remote control device **200** stores the wireless connection information received from the display device **100** (S**1005**).
(184) Thereafter, the remote control device **200** receives a Near Field Communication (NFC) tagging signal from the mobile terminal **500** (S**1007**), and transmits the stored wireless connection information to the mobile terminal **500** in response to the received NFC tagging signal (S**1009**).
(185) The processor **590** of the mobile terminal **500** wirelessly connects to the display device **100** using the received wireless connection information (S**1011**).
(186) Meanwhile, the processor **590** of the mobile terminal **500** transmits an action request to the display device **100** (S**1013**).
(187) In one embodiment, the action request may be a mirroring request for viewing the screen of the mobile terminal **500** on the display device **100**.
(188) In another example, the action request may be a reverse mirroring request for viewing the screen of the display device **100** on the mobile terminal **500**.
(189) In another example, the action request may be a request for outputting audio output from the audio output unit **185** of the display device **100** to the mobile terminal **500**.
(190) In another example, the action request may be a request for viewing the content of the mobile terminal **500** on the display device **100**.
(191) In another example, the action request may be a request for the display device **100** to display a plurality of contents included in the content registration information of step S**1001**.
(192) Actions may be added according to user setting.
(193) The control unit **170** of the display device **100** performs an action in response to the action request received from the mobile terminal **500** (S**1015**).
(194) FIG. **11** is a diagram illustrating a process of setting and executing an NFC dynamic action according to another embodiment of the present disclosure.
(195) FIG. **11** is a diagram embodying the embodiment of FIG. **10**.
(196) The display device **100** may store a plurality of contents to be executed through NFC linkage according to a user input and content registration information including information of each content in the storage unit **140** (S**1101**).
(197) The remote control device **200** may receive the Wi-Fi address from the user input interface unit **150** of the display device **100** (S**1103**). The remote control device **200** and the display device **100** may communicate through a Bluetooth communication standard.
(198) To this end, each of the user input interface unit **150** and the remote control device **200** may include a Bluetooth communication circuit.
(199) The remote control device **200** may store the Wi-Fi address received from the display device **100** in the NFC module **227** (S**1105**).
(200) If one of the plurality of mobile terminals **500-1** to **500-3** (**500-1**) is tagged with the remote control device **200** (S**907**), the remote control device **200** may transmit a Wi-Fi address to the corresponding terminal (S**1109**).
(201) The mobile terminal **500-1** may be connected to the display device **100** through Wi-Fi communication using a Wi-Fi address.
(202) The mobile terminal **500-1** may transmit an action request to the display device **100** (S**1111**).
(203) In one embodiment, the action request may be a request related to mirroring, audio output, and content reproduction.
(204) In another embodiment, the action request may be a request to display a plurality of contents included in the content registration information on the display device **100** or the mobile terminal **500**.
(205) The control unit **170** may determine the type of action request and control the storage unit **140** or the display unit **180** according to the identified action request.
(206) For example, if the type of action request is a first action request for device interworking

between the display device **100** and the mobile terminal **500**, the control unit **170** sends the display unit **180** or the audio output unit **185**. Through this, it is possible to perform a device linkage function (S**1111**).
(207) The device linkage function may be any one of a video mirroring function, an audio mirroring function, and a function of viewing content of the mobile terminal **500** through the display device **100**.
(208) If the type of action request is a second action request requesting content registration information stored in the display device **100**, the control unit **170** may read the content registration information through the storage unit **140** (S**1113**). The control unit **170** may display a plurality of contents included in the read content registration information on the display unit **180**.
(209) FIG. **12** is a diagram illustrating a screen displayed on a mobile terminal if the mobile terminal is tagged with a remote control device according to an embodiment of the present disclosure.
(210) Referring to FIG. **12**, if the user brings the mobile terminal **500** to the NFC tag mark **201** of the remote control device **200**, the mobile terminal **500** may display a guide screen **1200** for an NFC interworking function.
(211) The guide screen **1200** may be a screen for guiding interlocking functions between the mobile terminal **500** and the display device **100** using NFC.
(212) The guide screen **1200** may include a guide item **1210**, a mirroring item **1220**, a reverse mirroring item **1230**, an audio reverse mirroring item **1240**, and a content playback item **1250**.
(213) The guide item **1210** may be an item describing an NFC interworking function. The guide item **1210** may include a guide image **1211** indicating a tagging operation between the mobile terminal and the remote control device and guide text **1213** indicating selection of an NFC interworking function.
(214) The guide text **1213** may further include text guiding addition or change of the NFC interworking function.
(215) The mirroring item **1220** may be an item for executing a mirroring function allowing viewing of the screen of the mobile terminal **500** on the display device **100**.
(216) If the mirroring item **1220** is selected, the mobile terminal **500** may transmit information about the screen being displayed to the display device **100**. The display device **100** may display the same screen as the screen being displayed by the mobile terminal **500** based on the received screen information.
(217) The reverse mirroring item **1230** may be an item for executing a function for viewing the screen of the display device **100** on the mobile terminal **500**.
(218) If the reverse mirroring item **1230** is selected, the mobile terminal **500** can request and receive information on the screen being displayed on the display device **100**. The mobile terminal **500** may display the screen being displayed on the display device **100** based on the received screen information.
(219) The audio reverse mirroring item **1240** may be an item for listening to audio output from the display device **100** in the mobile terminal **500**. If the audio reverse mirroring item **1240** is selected, the mobile terminal **500** may request transmission of audio output from the display device **100** and receive the audio in response to the request.
(220) The mobile terminal **500** may output the received audio.
(221) The content playback item **1250** may be an item for viewing content stored in the mobile terminal **500** or content corresponding to a web address on the display device **100**.
(222) If the content playback item **1250** is selected, the mobile terminal **500** may request the display device **100** to play the content stored in the mobile terminal **500** or the content corresponding to the web address. To this end, the mobile terminal **500** may transmit one or more of content or content information (source information, URL information) to the display device **100**.
(223) The display device **100** may reproduce content based on content or content information

received from the mobile terminal **500**.
(224) According to another embodiment, a user may add or change an NFC interworking function through the guide screen **1200**.
(225) For example, a user may add a function for transmitting a URL of a web page displayed by the mobile terminal **500** to the display device **100** or a function of requesting a URL of a web page displayed by the display device **100** to the guide screen **1200**, or change with other item.
(226) In this way, the user can easily access the function for interworking between the mobile terminal **500** and the display device **100** only by tagging the mobile terminal **500** to the remote control device **200**.
(227) FIG. **13** is a diagram illustrating a screen displayed on a display device if a mobile terminal is tagged with a remote control device according to another embodiment of the present disclosure.
(228) Referring to FIG. **13**, if the user brings the mobile terminal **500** to the NFC tag mark **201** of the remote control device **200**, the display device **100** read content registration information corresponding to the mobile terminal **500** and display the content list **1310** on the display unit **180**.
(229) The content list **1310** may include a plurality of content items **1311** to **1319** included in pre-registered content registration information.
(230) The first content item **1311** may be an item (application) representing a content provider.
(231) The second content item **1313** may be an item representing a channel.
(232) The third content item **1315** may be an item (thumbnail) representing a video playable through a video playback service.
(233) The fourth content item **1317** may be an item representing an Internet application accessible to a web site.
(234) The fifth content item **1319** may be an item for setting up a wireless connection.
(235) The fifth content item **1319** may be a setting item capable of controlling output brightness of the display unit **180**, sound of the display device **100**, and the like.
(236) In this way, the user can quickly access content desired to be executed on the display device **100** only by tagging the mobile terminal **500** to the remote control device **200**. Accordingly, user experience can be greatly improved.
(237) That is, since data that can be stored in the NFC tag is limited, content registration information stored in the storage unit **140** of the display device **100** having a larger capacity can be utilized through the NFC function.
(238) FIGS. **14**A and **14**B are diagrams for explaining an example of sharing a URL between a mobile terminal and a display device according to an NFC interworking function.
(239) In FIGS. **14**A and **14**B, it is assumed that the user has performed a tagging operation of the mobile terminal **500** to the remote control device **200**.
(240) Also, the mobile terminal **500** displays the web page **1410** on the display **540** through the web browser before tagging.
(241) The mobile terminal **500** may transmit the URL of the web page **1410** to the display device **100** after being connected to the display device **100** through Wi-Fi communication.
(242) A function for the mobile terminal **500** to transmit a URL of a web page to the display device **100** may be set in advance.
(243) That is, the user may set the function of transmitting the URL of the web page of the mobile terminal **500** to the display device **100** as an NFC linkage function in advance. This may be performed in step S**601** of FIG. **6**.
(244) Referring to FIG. **14**A, the mobile terminal **500** may tag the URL of the web page **1410** on the display **540** and transmit it to the display device **100** during tagging. The mobile terminal **500** may transmit a URL and a message requesting access to the URL to the display device **100** together.
(245) The display device **100** may display the web page **1430** by accessing the URL received from the mobile terminal **500**.

(246) Referring to FIG. **14**B, a user may set a function of transmitting a URL of a web page accessed and displayed by the display device **100** through a web browser to the mobile terminal **500** as an NFC interworking function in advance. This may be performed in step S**601** of FIG. **6**.
(247) After tagging, the mobile terminal **500** may request the URL of the web page **1430** being displayed on the display device **100**. The display device **100** may transmit a URL to the mobile terminal **500** according to a URL request.
(248) The mobile terminal **500** may display the web page **1410** through a web browser using the received URL.
(249) As such, according to an embodiment of the present disclosure, a web page can be easily shared between the display device **100** and the mobile terminal **500** only by setting a simple NFC-linked function.
(250) FIGS. **15**A to **15**C are diagrams for explaining that an interworking function between a mobile terminal and a display device varies based on the number of times of NFC tagging according to an embodiment of the present disclosure.
(251) In FIGS. **15**A to **15**C, it is assumed that the user sets the reverse mirroring function through NFC tagging once and sets the mirroring function through NFC tagging twice.
(252) The set information may be stored in the mobile terminal **500** or the display device **100**.
(253) Referring to FIG. **15**A, the mobile terminal **500** displays a home screen **1501** and the display device **100** displays an image **1510**. The image **1510** may be an image executed through a live broadcasting app or an image received from an external device through an HDMI input (HDMI app).
(254) If the mobile terminal **500** is tagged as the remote control device **200**, the mobile terminal **500** may wirelessly connect to the display device **100** and request foreground app information from the display device **100**.
(255) That is, the mobile terminal **500** may request information on an application that the display device **100** is running. Application information may include one or more of an application ID, an application name, and an application parameter.
(256) The mobile terminal **500** may receive application information from the display device **100** and determine which application the display device **100** is running.
(257) FIG. **15**B is a diagram showing that a reverse mirroring function is executed if the mobile terminal **500** is tagged with the remote control device **200** once. That is, the mobile terminal **500** may receive image data for the image **1510** being displayed by the display device **100** from the display device **100**.
(258) The mobile terminal **500** may display a reverse mirroring image **1530** based on the received image data.
(259) The mobile terminal **500** may execute the corresponding application through the ID of the application running on the display device **100** included in the previously received application information, and display the mirroring image **1530** through the executed application.
(260) FIG. **15**C is a diagram showing that a mirroring function is executed if the mobile terminal **500** is tagged with the remote control device **200** twice. That is, the mobile terminal **500** may transmit image data for the home screen **15001** being displayed to the display device **100**.
(261) The display device **100** may display a mirroring image **1550** based on the received image data.
(262) As such, according to an embodiment of the present disclosure, different NFC-linked functions may be provided according to the number of times the mobile terminal **500** is tagged, and thus various user experiences may be provided.
(263) FIGS. **16**A to **17**B are diagrams illustrating an NFC interworking function between a mobile terminal and a display device according to another embodiment of the present disclosure.
(264) According to another embodiment of the present disclosure, an interworking function according to NFC tagging may vary according to the type of application being executed in the

mobile terminal **500**.
(265) The mobile terminal **500** may determine the type of action request based on the type of application being executed.
(266) For example, in FIG. **16**A, it is assumed that the mobile terminal **500** is playing a video **1601** through a video playback application. Any application or image being executed by the display device **100** may be used.
(267) After NFC tagging with the remote control device **200**, the mobile terminal **500** is wirelessly connected to the display device **100**.
(268) The mobile terminal **500** is executing a video playback application and may transmit image data of the video **1601** to the display device **100** in order to execute a mirroring function.
(269) As shown in FIG. **16**B, the display device **100** displays a mirroring image **1610** based on the received image data.
(270) That is, if an application being executed by the mobile terminal **500** is an application for content reproduction, an interworking function performed through an NFC tagging operation may be a mirroring function.
(271) Next, FIGS. **17**A and **17**B will be described.
(272) In FIG. **17**A, it is assumed that the mobile terminal **500** displays a gallery screen **1701** through a gallery application that provides stored photos or videos. Any application or image being executed by the display device **100** may be used.
(273) After NFC tagging with the remote control device **200**, the mobile terminal **500** is wirelessly connected to the display device **100**.
(274) The mobile terminal **500** is running a gallery application and may transmit stored photos and videos to the display device **100** through the gallery application in order to execute a Digital Living Network Alliance (DLNA) function.
(275) As shown in FIG. **17**B, the display device **100** may display a DLNA content screen **1710** based on the received photos and videos.
(276) That is, if the application being executed by the mobile terminal **500** is a gallery application, an interworking function performed through an NFC tagging operation may be a DLNA content providing function.
(277) In this way, according to an embodiment of the present disclosure, an NFC interworking function suitable for the type of application being executed by the mobile terminal **500** is applied, so that the user can enjoy a smarter experience.
(278) According to an embodiment of the present disclosure, the above-described method can be implemented as a processor-readable code in a medium on which a program is recorded. Examples of media readable by the processor include ROM, RAM, CD-ROM, magnetic tape, floppy disk, and optical data storage devices, and those can be implemented in the form of carrier waves (eg, transmission through the Internet).
(279) The display device described above is not limited to the configuration and method of the above-described embodiments, but the embodiments may be configured by selectively combining all or part of each embodiment so that various modifications can be made.

Claims

1. A mobile terminal comprising: a display; a Near Field Communication (NFC) device configured to transmit a NFC tagging signal to a remote control device and receive wireless connection information in response to the NFC tagging signal; a Wi-Fi transceiver configured to perform a Wi-Fi connection with a display device using the wireless connection information; and a processor configured to transmit an action request for interworking with the mobile terminal to the display device based on the mobile terminal being connected to the display device via Wi-Fi, wherein the processor is further configured to: display a guide screen for guiding a NFC interworking function

between the mobile terminal and the display device on the display, according to the NFC tagging of the mobile terminal, and the guide screen includes a menu for receiving a selection of the NFC interworking function and the menu includes one or more of a mirroring function item, a reverse mirroring function item, an audio reverse mirroring function item, and a content playback function item.

2. The mobile terminal of claim 1, wherein the action request is a request to display a content list including a plurality of content pre-registered in a storage unit of the display device.

3. The mobile terminal of claim 1, wherein the action request is a request to transmit information on a plurality of contents pre-registered in a storage unit of the display device, and wherein the processor is configured to receive information on the plurality of pre-registered contents according to the action request, and display the plurality of received pre-registered contents on the display.

4. The mobile terminal of claim 1, wherein the processor is configured to transmit different action requests to the display device according to a number of tagging of the mobile terminal.

5. The mobile terminal of claim 4, wherein: based on the mobile terminal being tagged for a first time to the remote control device, the processor is configured to receive an image being displayed by the display device, and displays a reverse mirroring image based on the received image on the display, and based on the mobile terminal being tagged for a second time to the remote control device, the processor is configured to transmit the image being displayed on the display to the display device.

6. The mobile terminal of claim 1, wherein the processor is configured to determine the action request based on a type of application the mobile terminal is running.

7. A display system including a display device, a remote control device and a mobile terminal, wherein the display device is configured to transmit wireless connection information to the remote control device, and wherein the mobile terminal is configured to: transmit a Near Field Communication (NFC) tagging signal to the remote control device, receive the wireless connection information from the remote control device in response to the NFC tagging signal, perform a wireless connection with the display device based on the received wireless connection information, and transmit an action request for an interworking function to the display device as the wireless connection is performed, wherein the mobile terminal comprises a display and is further configured to: display a guide screen for guiding a NFC interworking function between the mobile terminal and the display device on the display, according to the NFC tagging of the mobile terminal, and the guide screen includes a menu for receiving a selection of the NFC interworking function and the menu includes one or more of a mirroring function item, a reverse mirroring function item, an audio reverse mirroring function item, and a content playback function item.

8. The display system of claim 7, wherein the display device is configured to: store content registration information including a plurality of contents, in response to the action request, display the plurality of contents.

9. The display system of claim 7, wherein the mobile terminal is configured to transmit different action requests to the display device according to a number of tagging of the mobile terminal.

10. The display system of claim 9, wherein: based on the mobile terminal is-being tagged for a first time to the remote control device, the mobile terminal is configured to receive an image being displayed by the display device, and displays a reverse mirroring image based on the received image on the display, and based on the mobile terminal being tagged for a second time to the remote control device, the mobile terminal is configured to transmit the image being displayed on the display to the display device.

11. The display system of claim 7, wherein the mobile terminal is configured to determine the action request based on a type of application the mobile terminal is running.