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(71) Applicant: **TENCENT TECHNOLOGY (SHENZHEN) COMPANY LIMITED** [CN/CN]; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian, Shenzhen, Guangdong 518000 (CN).

(72) Inventors: **BU, Manzhao**; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian, Shenzhen, Guangdong 518000 (CN). **TANG, Wenning**; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian, Shenzhen, Guangdong 518000 (CN). **HUANG, Ping**; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian, Shenzhen, Guangdong 518000 (CN). **YANG, Haisong**; Room 403, East Block 2, SEG Park, Zhenxing Road, Futian, Shenzhen, Guangdong 518000 (CN).

(74) Agent: **GUANGZHOU SCIHEAD PATENT AGENT CO.. LTD**; Room 1508, Huihua Commercial & Trade Building, No. 80, XianLie Zhong Road, Yuexiu, Guangzhou, Guangdong 510070 (CN).

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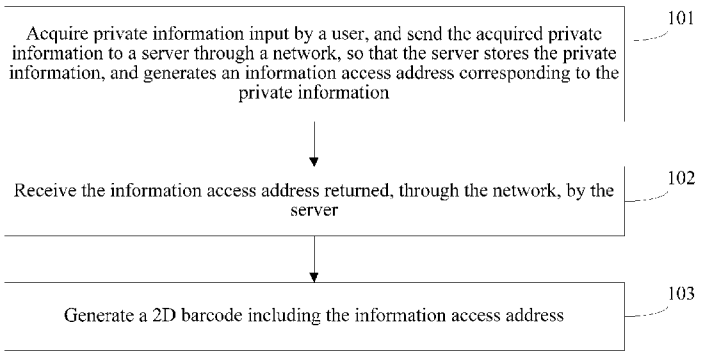

FIG. 1

(57) Abstract: The present disclosure discloses methods and terminals for generating and reading a 2D barcode and servers, and belongs to the field of information processing technologies. The method for generating a 2D barcode includes: acquiring private information input by a user, and sending the private information to a server through a network; receiving an information access address returned, through the network, by the server; and generating a 2D barcode including the information access address. The method for reading a 2D barcode includes: acquiring a 2D barcode including an information access address, and scanning the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information; sending the information access address to a server through a network; and receiving the private information returned, through the network, by the server, and using the private information as a reading result of the 2D barcode. In the present disclosure, private information is replaced with an information access address, so that security of private information is ensured, and enciphering and deciphering are not needed, so that costs of generating and reading a 2D barcode are reduced, and an application scope of a 2D barcode is broadened.

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METHODS AND TERMINALS FOR GENERATING AND READING 2D BARCODE AND SERVERS

FIELD OF THE TECHNOLOGY

[0001] The present disclosure relates to the field of information processing technologies, and in particular, to methods and terminals for generating and reading 2D barcode and servers.

BACKGROUND OF THE DISCLOSURE

[0002] With the ongoing development of information processing technologies, a 2D barcode has found wide application for its characteristics such as wide encoding range and high fault tolerance. A Quick Response (QR) 2D barcode is one type of 2D barcode, and each QR2D barcode is represented in the form of an image, where the image is a square array. The generation of a 2D barcode refers to conversion of information into an image, and reading of a 2D barcode refers to conversion of an image into information. As the application scope of a 2D barcode is broadened, the types and quantity of information recorded in a 2D barcode keep growing, especially, information involving privacy of a user. Further, after 2D barcode software installed on a terminal scans the 2D barcode, information recorded in the 2D barcode may be directly obtained. When information recorded in a 2D barcode is private information, security of the private information cannot be protected. Therefore, how to generate and read a 2D barcode for private information becomes an issue that draws people's attention.

[0003] Currently there are two manners of generating and reading a 2D barcode. A first manner of generating a 2D barcode is: acquiring private information, and enciphering the private information; and generating a 2D barcode according to the enciphered private information. A first manner of reading a 2D barcode is: acquiring a 2D barcode, and scanning the 2D barcode, to obtain enciphered private information; and deciphering the enciphered private information by using a deciphering manner corresponding to an enciphering manner, to obtain the private information, and using the private information as a reading result of the 2D barcode.

[0004] A second manner of generating a 2D barcode is: acquiring private information and a private information indicator, the private information indicator being for distinguishing private information from nonprivate information and indicating whether to present the private information; and generating a 2D barcode according to the private information and the private information indicator. A second manner of reading a 2D barcode is: scanning a 2D barcode, to obtain private information and a private information indicator, so that if the private information indicator indicates

to present the private information, the private information is used as a reading result of the 2D barcode, and if the private information indicator indicates not to present the private information, the reading result of the 2D barcode is empty, that is, the private information cannot be read.

[0005] In a process of implementing the present disclosure, the inventor finds that the existing technology at least has the following problems:

[0006] In the first manner of generating a 2D barcode, private information is enciphered, so that information recorded in a generated 2D barcode includes the enciphered private information; however, the enciphered private information is at a risk of being cracked, resulting in that security of private information cannot be ensured, and a cost of generating a 2D barcode is increased for enciphering of private information. In the first manner of reading a 2D barcode, a deciphering manner corresponding to an enciphering manner needs to be used, so that a cost of reading a 2D barcode is increased, and application of a 2D barcode is adversely affected. In the second manner of generating a 2D barcode, a generated 2D barcode includes private information, and security of private information cannot be ensured either. In the second manner of reading a 2D barcode, although presentation of private information may be indicated by using a private information indicator, security of private information still cannot be ensured.

SUMMARY

[0007] To solve existing technical problems, embodiments of the present invention provide methods and terminals for generating and reading 2D barcode and servers. The technical solutions are as follows:

[0008] According to a first aspect, a method for generating a 2D barcode is provided, the method including:

acquiring private information input by a user, and sending the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

receiving the information access address returned, through the network, by the server; and

generating a 2D barcode including the information access address.

[0009] According to a second aspect, a method for generating a 2D barcode is provided, the method including:

receiving private information sent, through a network, by a terminal, and storing the private information;

generating an information access address corresponding to the private information; and

returning the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

[0010] According to a third aspect, a method for reading a 2D barcode is provided, the method including:

acquiring a 2D barcode including an information access address, and scanning the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information;

sending the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address; and

receiving the private information returned, through the network, by the server, and using the private information as a reading result of the 2D barcode.

[0011] According to a fourth aspect, a method for reading a 2D barcode is provided, the method including:

receiving an information access address sent, through a network, by a terminal and for accessing private information;

searching prestored private information for private information corresponding to the information access address; and

returning the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

[0012] According to a fifth aspect, a terminal for generating a 2D barcode is provided, the terminal including:

an acquisition module, configured to acquire private information input by a user;

a sending module, configured to send the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

a receiving module, configured to receive the information access address returned, through the network, by the server; and

a generation module, configured to generate a 2D barcode including the information access address.

[0013] According to a sixth aspect, provided is a server, the server including:

a receiving module, configured to receive private information sent, through a network, by a terminal;

a storage module, configured to store the private information;

a generation module, configured to generate an information access address corresponding to the private information; and

a return module, configured to return the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

[0014] According to a seventh aspect, a terminal for reading a 2D barcode is provided, the terminal including:

an acquisition module, configured to acquire a 2D barcode including an information access address;

a scanning module, configured to scan the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information;

a sending module, configured to send the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address;

a receiving module, configured to receive the private information returned, through the network, by the server; and

a reading module, configured to use the private information as a reading result of the 2D barcode.

[0015] According to an eighth aspect, a server is provided, the server including:

a receiving module, configured to receive an information access address sent, through a network, by a terminal and for accessing private information;

a search module, configured to search prestored private information for private information corresponding to the information access address; and

a return module, configured to return the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

[0016] The beneficial effects brought by the technical solutions provided in the embodiments of the present invention are:

[0017] Private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and private information returned by the server through the network is then received; and therefore, generation and reading of a 2D barcode are implemented without enciphering and deciphering, costs of generating and reading a 2D barcode are reduced, an application scope of a 2D barcode is broadened, and a generated and read 2D barcode includes an information access address, so that security of private information is ensured.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] To describe the technical solutions in the embodiments of the present invention more clearly, drawings required in description of the embodiments will be introduced simply below. It is obvious that the drawings in the following description are only some of the embodiments of the present invention, and a person of ordinary skill in the art may obtain other drawings based on the drawings without creative efforts.

[0019] FIG. 1 is a flowchart of a first method for generating a 2D barcode provided in Embodiment 1 of the present invention;

[0020] FIG. 2 is a flowchart of a second method for generating a 2D barcode provided in Embodiment 1 of the present invention;

[0021] FIG. 3 is a flowchart of a first method for reading a 2D barcode provided in Embodiment 2 of the present invention;

[0022] FIG. 4 is a flowchart of a second method for reading a 2D barcode provided in Embodiment 2 of the present invention;

[0023] FIG. 5 is a flowchart of a method for generating a 2D barcode provided in Embodiment 3 of the present invention;

[0024] FIG. 6 is an architecture diagram of a secure 2D barcode service system provided in Embodiment 3 of the present invention;

[0025] FIG. 7 is a flowchart of saving, by the secure 2D barcode service system, information input by a user provided in Embodiment 3 of the present invention;

[0026] FIG. 8 is a flowchart of a method for reading a 2D barcode provided in Embodiment 4 of the present invention;

[0027] FIG. 9 is a flowchart of saving, by a secure 2D barcode service system, information acquired by a user by scanning a 2D barcode provided in Embodiment 4 of the present invention;

[0028] FIG. 10 is a schematic structural diagram of a terminal for generating a 2D barcode provided in Embodiment 5 of the present invention;

[0029] FIG. 11 is a schematic structural diagram of a server provided in Embodiment 6 of the present invention;

[0030] FIG. 12 is a schematic structural diagram of a generation module provided in Embodiment 6 of the present invention;

[0031] FIG. 13 is a schematic structural diagram of a terminal for reading a 2D barcode provided in Embodiment 7 of the present invention;

[0032] FIG. 14 is a schematic structural diagram of a server provided in Embodiment 8 of the present invention;

[0033] FIG. 15 is a schematic structural diagram of a search module provided in Embodiment 8 of the present invention;

[0034] FIG. 16 is a schematic structural diagram of a terminal provided in Embodiment 9 of the present invention;

[0035] FIG. 17 is a schematic structural diagram of a server provided in Embodiment 12 of the present invention;

[0036] FIG. 18 is a schematic structural diagram of a system for generating a 2D barcode provided in Embodiment 13 of the present invention;

[0037] FIG. 19 is a schematic structural diagram of a terminal provided in Embodiment 14 of the present invention;

[0038] FIG. 20 is a schematic structural diagram of a server provided in Embodiment 17 of the present invention; and

[0039] FIG. 21 is a schematic structural diagram of a system for reading a 2D barcode provided in Embodiment 18 of the present invention.

DESCRIPTION OF EMBODIMENTS

[0040] To make the objectives, technical solutions, and advantages in the present disclosure clearer, the implementation manners of the present invention are further described in detail below with reference to the accompanying drawings.

Embodiment 1

[0041] For private information, an embodiment of the present invention provides a method for generating a 2D barcode. The method is applicable to a system for generating a 2D barcode. The system includes a terminal and a server, and the terminal and the server are both in a network environment. By using an example of a perspective that the terminal executes the method provided in the embodiment of the present invention, referring to FIG. 1, a procedure of the method includes:

[0042] 101: Acquire private information input by a user, and send the acquired private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information.

[0043] 102: Receive the information access address returned, through the network, by the server.

[0044] As an optional embodiment, the receiving the information access address returned, through the network, by the server includes:

receiving, the information access address that is returned by the server through the network and at least includes an information identifier of the private information.

[0045] As an optional embodiment, the receiving the information access address returned, through the network, by the server includes:

receiving, the information access address that is returned by the server through the network and at least includes an information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

[0046] 103: Generate a 2D barcode including the information access address.

[0047] Referring to FIG. 2, by using an example of a perspective that a server executes method for generating a 2D barcode provided in the embodiment of the present invention, a procedure of the method provided in the embodiment of the present invention includes:

[0048] 201: Receive private information sent, through a network, by a terminal, and store the private information.

[0049] 202: Generate an information access address corresponding to the private information.

[0050] As an optional embodiment, the generating an information access address corresponding to the private information includes:

acquiring an information identifier of the private information, and storing the information identifier, one information identifier corresponding to one piece of private information; and

generating the information access address including the information identifier of the private information.

[0051] As an optional embodiment, during the acquiring an information identifier of the private information, the method further includes:

acquiring a check identifier and/or a time identifier corresponding to the private information, and storing the check identifier corresponding to the private information; and

the generating the information access address including the information identifier of the private information includes:

generating the information access address including the information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information.

[0052] 203: Return the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

[0053] In the method provided in the embodiment of the present invention, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering and deciphering, a cost of generating a 2D barcode is reduced, an application scope of a

2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 2

[0054] For the above method for generating a 2D barcode provided in Embodiment 1, an embodiment of the present invention provides a method for reading a 2D barcode. The method is applicable to a system for reading a 2D barcode. The system includes a terminal and a server, and the terminal and the server are both in a network environment. By using an example of a perspective that a terminal executes the method provided in the embodiment of the present invention, referring to FIG. 3, a procedure of the method includes:

[0055] 301: Acquire a 2D barcode including an information access address, and scan the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information.

[0056] 302: Send the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address.

[0057] 303: Receive the private information returned, through the network, by the server, and use the private information as a reading result of the 2D barcode.

[0058] As an optional embodiment, the information access address at least includes an information identifier of the private information; and

the receiving the private information returned, through the network, by the server includes:

receiving, after the server finds the private information according to the information identifier of the private information included in the information access address, the private information returned through the network.

[0059] As an optional embodiment, the information access address further includes a check identifier and/or a time identifier corresponding to the private information; and

the receiving the private information returned, through the network, by the server includes:

receiving, after the server finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information included in the information access address, the private information returned through the network.

[0060] Referring to FIG. 4, by using an example of a perspective that a server executes the method for reading a 2D barcode provided in the embodiment of the present invention, a procedure of the method provided in the embodiment of the present invention includes:

[0061] 401: Receive an information access address sent, through a network, by a terminal and for accessing private information.

[0062] 402: Search prestored private information for private information corresponding to the information access address.

[0063] As an optional embodiment, the information access address includes an information identifier of the private information; and

the searching prestored private information for private information corresponding to the information access address includes:

searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0064] As an optional embodiment, the information access address further includes a check identifier and/or a time identifier; and

the searching the prestored private information for the private information corresponding to the information identifier included in the information access address includes:

determining whether the check identifier included in the information access address is consistent with a prestored check identifier, and/or determining whether the time identifier included in the information access address is ineffective; and

executing, if the check identifier included in the information access address is consistent with the prestored check identifier, and/or the time identifier included in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0065] 403: Return the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

[0066] In the method provided in the embodiment of the present invention, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and the private information returned by the server through the network is received;

therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 3

[0067] An embodiment of the present invention provides a method for generating a 2D barcode. The method provided in the embodiment of the present invention is described in detail with reference to the above content in Embodiment 1. Referring to FIG. 5, a procedure of the method includes:

[0068] 501: A terminal acquires private information input by a user, and sends the acquired private information to a server through a network.

[0069] A manner of acquiring private information input by a user is not specifically limited in this embodiment. Specific implementation includes, but is not limited to: providing an information input interface, the input interface being further provided with a submit button; and acquiring information input, through the information input interface, by a user, and using, when it is detected that the user clicks the submit button, the information input, through the information input interface, by the user as the acquired private information input by the user.

[0070] To ensure security of the private information, the method provided in this embodiment includes, but is not limited to, sending the acquired private information to the server through the network.

[0071] In addition, referring to an architecture diagram of a secure 2D barcode service system shown in FIG. 6, the secure 2D barcode service system includes a client program and an information storage subsystem. The client program includes an information processing module and a 2D barcode module. The information processing module is connected to a user input, and the 2D barcode module is connected to scanning of a 2D barcode by a user. The information storage subsystem includes a data processing module, a network service module, and a 2D barcode information database. The network service module is connected to the scanning of the 2D barcode by the user. The user input correspondingly acquires private information input by the user, and the information processing module is configured to send the private information to a server through a network.

[0072] 502: The server receives the private information sent, through the network, by the terminal, and stores the private information.

[0073] Referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the network service module is configured to receive the private information sent, through the network, by the terminal, and transfer the private information to the data processing module, so that the data processing module saves the private information in the 2D barcode information database.

[0074] It should be noted that in the method provided in the embodiment of the present invention, private information is stored on a server, so that a generated 2D barcode does not include private information, so that security of private information is ensured. A manner in which the server stores the private information is not specifically limited in this embodiment, and includes, but is not limited to, storing each piece of private information according to an information identifier of the private information.

[0075] 503: The server generates an information access address corresponding to the private information.

[0076] Because private information is stored on a server side, to access private information, in the method provided in this embodiment, the server generates the information access address corresponding to the private information, the information access address being for accessing the private information. During specific implementation, the generated information access address may be one Uniform Resource Locator (URL).

[0077] As an optional embodiment, the generating an information access address corresponding to the private information includes, but is not limited to:

acquiring an information identifier of the private information, and storing the information identifier, one information identifier corresponding to one piece of private information; and

generating the information access address including the information identifier of the private information.

[0078] A manner of acquiring the information identifier of the private information is not specifically limited in this embodiment. Specific implementation includes, but is not limited to, calculating a Message Digest Algorithm 5 (MD5) value according to the entire private information, and the MD5 value is a 64-bit 8-byte integral type. The MD5value is used as the acquired information identifier of the private information. Because one information identifier corresponds to one piece of private information, an information identifier is used as an information access address, so that private information may be accessed by using an information identifier.

[0079] As an optional embodiment, during the acquiring an information identifier of the private information, the method further includes, but is not limited to:

acquiring a check identifier and/or a time identifier corresponding to the private information, and storing the check identifier corresponding to the private information; and

the generating the information access address including the information identifier of the private information includes:

generating the information access address including the information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information.

[0080] The foregoing procedure may be categorized into the following three cases:

[0081] In a first case, during the acquiring an information identifier of the private information, a check identifier corresponding to the private information may be acquired, and the check identifier corresponding to the private information may be stored; and the information access address including the information identifier of the private information and the check identifier corresponding to the private information is generated.

[0082] In a second case, during the acquiring an information identifier of the private information, a time identifier corresponding to the private information may be acquired; and the information access address including the information identifier of the private information and the time identifier corresponding to the private information is generated.

[0083] In a third case, during the acquiring an information identifier of the private information, a check identifier and a time identifier corresponding to the private information may be acquired, and the check identifier and the time identifier corresponding to the private information are stored; and the information access address including the information identifier of the private information and the check identifier and the time identifier corresponding to the private information is generated.

[0084] Neither of manners of acquiring a check identifier and/or a time identifier corresponding to the private information is specifically limited in this embodiment. Specific implementation includes, but is not limited to, randomly generating a 64-bit 8-byte integral type value, and using the value as the acquired check identifier corresponding to the private information, the check identifier being for checking the validity of the information access address; and generating a 64-bit 8-byte integral type timestamp according to server time, and using the

timestamp as the acquired time identifier corresponding to the private information, the time identifier being for checking effectiveness of information access address.

[0085] When the information access address includes both the information identifier of the private information, the check identifier corresponding to the private information, and the time identifier corresponding to the private information, the generated information access address may be: http://domain name/qrc?id=user information ID, check KEY value, and timestamp. The information access address includes one parameter id, and parameter values are a user information ID, a check KEY value, and a timestamp. The user information ID corresponds to the information identifier of the private information, the check KEY value corresponds to the check identifier corresponding to the private information, and the timestamp corresponds to the time identifier corresponding to the private information.

[0086] In addition, referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the data processing module is configured to generate the information access address corresponding to the private information.

[0087] 504: The server returns the information access address to the terminal through the network.

[0088] In this embodiment, a manner of returning the information access address to the terminal through the network is not limited. During specific implementation, referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, after generating the information access address corresponding to the private information, the data processing module may send the private address to the network service module, and the network server module returns the information access address to the terminal through the network.

[0089] 505: The terminal receives the information access address returned, through the network, by the server.

[0090] Referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the information processing module is configured to receive the information access address returned, through the network, by the server.

[0091] As an optional embodiment, after receiving the information access address returned, through the network, by the server, the information processing module may further store the information access address, and display whether the private information is successfully processed.

[0092] 506: The terminal generates a 2D barcode including the information access address.

[0093] Referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the 2D barcode module is configured to generate the 2D barcode including the information access address. The generated 2D barcode may be a QR 2D barcode. Because the generated 2D barcode does not include private information, so that security of the private information is ensured.

[0094] As an optional embodiment, after generating the 2D barcode including the information access address, the 2D barcode module may further display the 2D barcode.

[0095] In addition, referring to a flowchart of saving information input by user by a secure 2D barcode service system shown in FIG. 7, step 501 corresponds to that a user inputs information, and user information is sent through a network; step 502 and step 503 corresponds to that the user information is transferred, an ID value of the user information is calculated, the user information is saved, the user information has been saved, and a URL for acquiring the information is generated; and step 504 and step 505 correspond to that the URL for acquiring the information is returned, and the URL for acquiring the information is returned through the network, and it is displayed whether processing is successful.

[0096] In the method provided in this embodiment, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 4

[0097] With reference to the method for generating a 2D barcode provided in Embodiment 1 and Embodiment 3 above, an embodiment of the present invention provides a method for reading a 2D barcode. With reference to the content of Embodiment 2 above, the method provided in the embodiment of the present invention is described in detail. Referring to FIG. 8, a procedure of the method includes:

[0098] 801: A terminal acquires a 2D barcode including an information access address, and scans the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information.

[0099] Neither of manners of acquiring a 2D barcode including an information access address and scanning the 2D barcode is specifically limited in this embodiment. During specific

implementation, a 2D barcode may be generated by using the method provided in Embodiment 3 above, and the 2D barcode is used as the acquired 2D barcode including the information access address. After the 2D barcode is acquired, the 2D barcode may be scanned by using a 2D barcode scanning device. The 2D barcode scanning device may be a mobile phone, a tablet computer, and the like. Because the acquired 2D barcode includes the information access address, after the 2D barcode is scanned, the information access address included in the 2D barcode may be obtained, the information access address being for accessing private information.

[0100] In addition, referring to an architecture diagram of the secure 2D barcode service system shown in FIG. 6, a user scans a 2D barcode to correspondingly acquire a 2D barcode including an information access address, and a 2D barcode module is configured to scan the 2D barcode, to obtain the information access address included in the 2D barcode.

[0101] 802: The terminal sends the information access address to a server through a network.

[0102] To enable acquisition of private information according to an information access address, in the method provided in this embodiment, the information access address is sent to the server through the network. A manner of sending is not specifically limited in this embodiment. During specific implementation, referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the information processing module may send the information access address to the server through the network. The information access address may be a URL of a network Hyper Text Transfer Protocol (HTTP)/Hypertext Transfer Protocol over Secure Socket Layer (HTTPS) request.

[0103] 803: The server receives the information access address sent, through the network, by the terminal and for accessing private information.

[0104] Referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the network service module is configured to receive the information access address sent, through the network, by the terminal and for accessing private information, and transfer the information access address to the data processing module.

[0105] 804: The server searches prestored private information for private information corresponding to the information access address.

[0106] In this embodiment, a manner of searching for the private information corresponding to the information access address is not limited. During specific implementation, because the information access address is for accessing private information, the prestored private information

may be directly searched for the private information corresponding to the information access address.

[0107] As an optional embodiment, the information access address includes an information identifier of the private information; and

the searching prestored private information for private information corresponding to the information access address includes:

searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0108] By using the information identifier, the prestored private information may be rapidly searched for the private information corresponding to the information identifier included in the information access address.

[0109] As an optional embodiment, the information access address further includes a check identifier and/or a time identifier;

the searching the prestored private information for the private information corresponding to the information identifier included in the information access address includes:

determining whether the check identifier included in the information access address is consistent with a prestored check identifier, and/or determining whether the time identifier included in the information access address is ineffective; and

executing, if the check identifier included in the information access address is consistent with the prestored check identifier, and/or the time identifier included in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0110] The information access address provided in this embodiment may include the information identifier of the private information, or may further include the information identifier of the private information and the check identifier corresponding to the private information, or may further include the information identifier of the private information and the time identifier corresponding to the private information, or may further include the information identifier of the private information, the check identifier corresponding to the private information, and the time identifier corresponding to the private information. For the four types of information access addresses, during the search for the private information, four cases are included:

[0111] (1) When the information access address includes the information identifier of the private information, the prestored private information is directly searched for the private information corresponding to the information identifier included in the information access address.

[0112] (2) When the information access address includes the information identifier of the private information and the check identifier corresponding to the private information, it is determined whether the check identifier included in the information access address is consistent with the prestored check identifier; and when the check identifier included in the information access address is consistent with the prestored check identifier, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address is executed.

[0113] (3) When the information access address includes the information identifier of the private information and the time identifier corresponding to the private information, it is determined whether the time identifier included in the information access address is ineffective; and when the time identifier included in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address is executed.

[0114] (4) When the information access address includes the information identifier of the private information, the check identifier corresponding to the private information, and the time identifier corresponding to the private information, it is determined whether the check identifier included in the information access address is consistent with the prestored check identifier; when the check identifier included in the information access address is consistent with the prestored check identifier, it is determined whether the time identifier included in the information access address is ineffective; and when the time identifier included in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address is executed.

[0115] For ease of understanding, an example in which the information identifier corresponds to a user information ID, the check identifier corresponds to a check KEY value, and the time identifier corresponds to a timestamp is used for description. When it is determined that the check KEY value included in the information access address is consistent with the prestored check KEY value, it is determined that the information access address is effective; and when it is determined that the check KEY value included in the information access address is inconsistent with the prestored check KEY value, it is determined that the information access address is ineffective, and it is returned that acquisition of private information fails.

[0116] The determination of whether the time identifier included in the information access address is ineffective includes, but is not limited to, comparing time recorded in the timestamp with time of a current server; if a difference value between the time recorded in the timestamp and the time of the current server is greater than a preset time threshold, it is determined that the time identifier included in the information access address is ineffective, and it is returned that acquisition of private information fails; and if the difference value between the time recorded in the timestamp and the time of the current server is not greater than the preset time threshold, it is determined that the time identifier included in the information access address is effective. The preset time threshold may be 5 minutes. Certainly, in addition to the above preset time threshold, other preset time thresholds such as 4 minutes and 6 minutes may be further used, and are specifically limited in this embodiment.

[0117] In addition, referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the data processing module is configured to search the prestored private information for the private information corresponding to the information access address, the prestored private information being stored in the 2D barcode information database.

[0118] 805: The server returns the found private information to the terminal through the network.

[0119] In this embodiment, a manner of returning the found private information to the terminal through the network is not limited. During specific implementation, referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, after finding the private information corresponding to the information access address from the prestored private information, the data processing module sends the found private information to the network service module, so that the network service module returns the found private information to the terminal through the network.

[0120] 806: The terminal receives the private information returned, through the network, by the server, and uses the private information as a reading result of the 2D barcode.

[0121] Referring to the architecture diagram of the secure 2D barcode service system shown in FIG. 6, the information processing module is configured to receive the private information returned, through the network, by the server, and use the private information as a reading result of the 2D barcode.

[0122] In addition, referring to a flowchart of saving, by a secure 2D barcode service system, information acquired by a user by scanning a 2D barcode shown in FIG. 9, step 801 and step 802

correspond to that a picture of a 2D barcode is generated and displayed, a user scans the 2D barcode and initiates a network request, and pulls and saves information; step 803 and step 804 correspond to that an information pull request is initiated, a URL of the request is transmitted, the URL of the request is parsed, an ID value is acquired, the validity of the request is examined, a check KEY value is compared, a comparison result is returned, effectiveness of the request is examined, a timestamp is checked, it is checked that the timestamp fails, the check result is returned, and information is searched for according to an ID; and step 805 and step 806 correspond to that the information corresponding to the ID is returned, the acquired information is returned, and the acquired information is returned through the network.

[0123] In the method provided in this embodiment, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and private information returned by the server through the network is then received; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 5

[0124] Referring to FIG. 10, an embodiment of the present invention provides a terminal for generating a 2D barcode, the terminal including:

an acquisition module 1001, configured to acquire private information input by a user;

a sending module 1002, configured to send the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

a receiving module 1003, configured to receive an information access address returned, through the network, by the server; and

a generation module 1004, configured to generate a 2D barcode including the information access address.

[0125] As an optional embodiment, the receiving module 1003 is configured to receive the information access address that is returned by the server through the network and at least includes an information identifier of the private information.

[0126] As an optional embodiment, the receiving module 1003 is configured to receive the information access address returned by the server through the network and at least includes an information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

[0127] In the terminal provided in the embodiment of the present invention, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 6

[0128] Referring to FIG. 11, an embodiment of the present invention provides a server, the server including:

a receiving module 1101, configured to receive private information sent, through a network, by a terminal;

a storage module 1102, configured to store the private information;

a generation module 1103, configured to generate an information access address corresponding to the private information; and

a return module 1104, configured to return the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

[0129] As an optional embodiment, referring to FIG. 12, the generation module 1103 includes:

an acquisition unit 11031, configured to acquire an information identifier of the private information;

a storage unit 11032, configured to store the information identifier, one information identifier corresponding to one piece of private information; and

a generation unit 11033, configured to generate the information access address including the information identifier of the private information.

[0130] As an optional embodiment, the acquisition unit 11031 is further configured to: when an information identifier of the private information is acquired, acquire a check identifier and/or a time identifier corresponding to the private information;

the storage unit 11032 is further configured to store the check identifier corresponding to the private information; and

the generation unit 11033 is configured to generate the information access address including the information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information.

[0131] In the server provided in the embodiment of the present invention, private information sent by a terminal through a network is received and stored, and an information access address corresponding to the private information is generated and returned to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 7

[0132] Referring to FIG. 13, an embodiment of the present invention provides a terminal for reading a 2D barcode, the terminal including:

an acquisition module 1301, configured to acquire a 2D barcode including an information access address;

a scanning module 1302, configured to scan the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information;

a sending module 1303, configured to send the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address;

a receiving module 1304, configured to receive the private information returned, through the network, by the server; and

a reading module 1305, configured to use the private information as a reading result of the 2D barcode.

[0133] As an optional embodiment, the information access address obtained through scanning by the scanning module 1302 at least includes an information identifier of the private information; and

the receiving module 1304 is configured to receive, after the server finds the private information according to the information identifier of the private information included in the information access address, the private information returned through the network.

[0134] As an optional embodiment, the information access address obtained through scanning by the scanning module 1302 further includes a check identifier and/or a time identifier corresponding to the private information; and

the receiving module 1304 is configured to receive, after the server finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information included in the information access address, the private information returned through the network.

[0135] In the terminal provided in this embodiment, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and private information returned by the server through the network is then received; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 8

[0136] Referring to FIG. 14, an embodiment of the present invention provides a server, the server including:

a receiving module 1401, configured to receive an information access address sent, through a network, by a terminal and for accessing private information;

a search module 1402, configured to search prestored private information for private information corresponding to the information access address; and

a return module 1403, configured to return the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

[0137] As an optional embodiment, the information access address received by the receiving module 1401 includes an information identifier of the private information; and

the search module 1402 is configured to search the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0138] As an optional embodiment, the information access address received by the receiving module 1401 further includes a check identifier and/or a time identifier.

[0139] Referring to FIG. 15, the search module 1402 includes:

a determination unit 14021, configured to determine whether the check identifier included in the information access address is consistent with a prestored check identifier, and/or determine whether the time identifier included in the information access address is ineffective; and

an execution unit 14022, configured to execute, when the check identifier included in the information access address is consistent with the prestored check identifier, and/or the time identifier included in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0140] In the server provided in this embodiment, an information access address sent by a terminal through a network and for accessing private information is received, and private information corresponding to the information access address found from prestored private information is returned to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 9

[0141] An embodiment of the present invention provides a terminal. Please refer to FIG. 16, which is a schematic structural diagram of a terminal involved in the embodiment of the present invention, and the terminal may be configured to implement the method for generating a 2D barcode provided in the above embodiment. Specifically:

[0142] The terminal 1600 may include components such as a Radio Frequency (RF) circuit 110, a memory 120 including one or more computer readable storage media, an input unit 130, a display unit 140, a sensor 150, an audio circuit 160, a Wireless Fidelity (WiFi) module 170, a

processor 180 including one or more processing cores, and a power supply 190. A person skilled in the art may understand that the structure of the terminal shown in FIG. 16 does not constitute a limitation to the terminal, and the terminal may include more components or fewer components than those shown in the figure, or some components may be combined, or a different component deployment may be used.

[0143] The RF circuit 110 may be configured to receive and send signals during an information receiving and sending process or a call process. Particularly, downlink information from a base station is received and then delivered to one or more processors 180 for processing. In addition, related uplink data is sent to the base station. Generally, the RF circuit 110 includes, but is not limited to, an antenna, at least one amplifier, a tuner, one or more oscillators, a subscriber identity module (SIM) card, a transceiver, a coupler, a low noise amplifier (LNA), and a duplexer. In addition, the RF circuit 110 may also communicate with a network and another device by wireless communication. The wireless communication may use any communications standard or protocol, which includes, but is not limited to, Global System for Mobile communications (GSM), General Packet Radio Service (GPRS), Code Division Multiple Access (CDMA), Wideband Code Division Multiple Access (WCDMA), Long Term Evolution (LTE), e-mail, Short Messaging Service (SMS), and the like.

[0144] The memory 120 may be configured to store a software program and module. The processor 180 runs the software program and module stored in the memory 120, to implement various functional applications and data processing. The memory 120 may mainly include a program storage area and a data storage area. The program storage area may store an operating system, an application program required by at least one function (such as a sound playback function and an image display function), and the like. The data storage area may store data (such as audio data and an address book) created according to use of the terminal 1600, and the like. In addition, the memory 120 may include a high speed random access memory, and may also include a non-volatile memory, such as at least one magnetic disk storage device, a flash memory, or another volatile solid-state storage device. Accordingly, the memory 120 may further include a memory controller, so that the processor 180 and the input unit 130 access the memory 120.

[0145] The input unit 130 may be configured to receive input digit or character information, and generate a keyboard, mouse, joystick, optical, or track ball signal input related to the user setting and function control. Specifically, the input unit 130 may include a touch-sensitive surface 131 and another input device 132. The touch-sensitive surface 131, which may also be referred to as a touch screen or a touch panel, may collect a touch operation of a user on or near the touch-

sensitive surface (such as an operation of a user on or near the touch-sensitive surface 131 by using any suitable object or accessory, such as a finger or a stylus), and drive a corresponding connection apparatus according to a preset program. Optionally, the touch-sensitive surface 131 may include two parts: a touch detection apparatus and a touch controller. The touch detection apparatus detects a touch position of the user, detects a signal generated by the touch operation, and transfers the signal to the touch controller. The touch controller receives the touch signal from the touch detection apparatus, converts the touch signal into touch point coordinates, and sends the touch point coordinates to the processor 180. Moreover, the touch controller can receive and execute a command sent from the processor 180. In addition, the touch-sensitive surface 131 may be may be a resistive, capacitive, infrared, or surface sound wave type touch-sensitive surface. In addition to the touch-sensitive surface 131, the input unit 130 may further include the another input device 132. Specifically, the another input device 132 may include, but is not limited to, one or more of a physical keyboard, a functional key (such as a volume control key or a switch key), a track ball, a mouse, and a joystick.

[0146] The display unit 140 may be configured to display information input by the user or information provided for the user, and various graphical user interfaces of the terminal 1600. The graphical user interfaces may be formed by a graph, a text, an icon, a video, and any combination thereof. The display unit 140 may include a display panel 141. Optionally, the display panel 141 may be configured by using a liquid crystal display (LCD), an organic light-emitting diode (OLED), or the like. Further, the touch-sensitive surface 131 may cover the display panel 141. After detecting a touch operation on or near the touch-sensitive surface 131, the touch-sensitive surface 131 transfers the touch operation to the processor 180, so as to determine the type of the touch event. Then, the processor 180 provides a corresponding visual output on the display panel 141 according to the type of the touch event. Although, in FIG. 16, the touch-sensitive surface 131 and the display panel 141 are used as two separate parts to implement input and output functions, in some embodiments, the touch-sensitive surface 131 and the display panel 141 may be integrated to implement the input and output functions.

[0147] The terminal 1600 may further include at least one sensor 150, such as an optical sensor, a motion sensor, and other sensors. Specifically, the optical sensor may include an ambient light sensor and a proximity sensor. The ambient light sensor may adjust luminance of the display panel 141 according to brightness of the ambient light. The proximity sensor may switch off the display panel 141 and/or backlight when the terminal 1600 is moved to the ear. As one type of motion sensor, a gravity acceleration sensor may detect magnitude of accelerations in various directions (generally on three axes), may detect magnitude and a direction of the gravity when static,

and may be applied to an application that recognizes the attitude of the mobile phone (for example, switching between landscape orientation and portrait orientation, a related game, and magnetometer attitude calibration), a function related to vibration recognition (such as a pedometer and a knock), and the like. Other sensors, such as a gyroscope, a barometer, a hygrometer, a thermometer, and an infrared sensor, which may be configured in the terminal 1600, are not further described herein.

[0148] The audio circuit 160, a loudspeaker 161, and a microphone 162 may provide audio interfaces between the user and the terminal 1600. The audio circuit 160 may convert received audio data into an electric signal and transmit the electric signal to the loudspeaker 161. The loudspeaker 161 converts the electric signal into a sound signal for output. On the other hand, the microphone 162 converts a collected sound signal into an electric signal. The audio circuit 160 receives the electric signal and converts the electric signal into audio data, and outputs the audio data to the processor 180 for processing. Then, the processor 180 sends the audio data to, for example, another terminal by using the RF circuit 110, or outputs the audio data to the memory 120 for further processing. The audio circuit 160 may further include an earplug jack, so as to provide communication between a peripheral earphone and the terminal 1600.

[0149] WiFi is a short distance wireless transmission technology. The terminal 1600 may help, by using the WiFi module 170, the user to receive and send e-mails, browse a webpage, access stream media, and so on, which provides wireless broadband Internet access for the user. Although FIG. 16 shows the WiFi module 170, it may be understood that the wireless communications unit is not a necessary component of the terminal 1600, and when required, the wireless communications unit may be omitted as long as the scope of the essence of the present disclosure is not changed.

[0150] The processor 180 is the control center of the terminal 1600, and is connected to various parts of the mobile phone by using various interfaces and lines. By running or executing the software program and/or module stored in the memory 120, and invoking data stored in the memory 120, the processor 180 performs various functions and data processing of the terminal 1600, thereby performing overall monitoring on the mobile phone. Optionally, the processor 180 may include one or more processing cores. Preferably, the processor 180 may integrate an application processor and a modem. The application processor mainly processes an operating system, a user interface, an application program, and the like. The modem mainly processes wireless communication. It may be understood that the foregoing modem may also not be integrated into the processor 180.

[0151] The terminal 1600 further includes the power supply 190 (such as a battery) for supplying power to the components. Preferably, the power supply may be logically connected to the processor 180 by using a power management system, thereby implementing functions such as

charging, discharging and power consumption management by using the power management system. The power supply 190 may further include any component, such as one or more direct current or alternate current power supplies, a re-charging system, a power supply fault detection circuit, a power supply converter or an inverter, and a power supply state indicator.

[0152] Although not shown in the figure, the terminal 1600 may further include a camera, a Bluetooth module, and the like, which are not further described herein. Specifically, in this embodiment, the display unit of the terminal is a touch screen display, and the terminal further includes a memory and one or more programs. The one or more programs are stored in the memory and configured to be executed by one or more processors. The one or more programs contain instructions for executing the following operations:

acquiring private information input by a user, and sending the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

receiving an information access address returned, through the network, by the server; and

generating a 2D barcode including the information access address.

[0153] Assuming that the above is a first possible implementation manner, in a second possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes an instruction for executing the following operation:

the receiving an information access address returned, through the network, by the server includes:

receiving the information access address that is returned by the server through the network and at least includes an information identifier of the private information.

[0154] In a third possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes an instruction for executing the following operation:

the receiving an information access address returned, through the network, by the server includes:

receiving the information access address that is returned by the server through the network and at least includes an information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

[0155] In the terminal provided in the embodiment of the present invention, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 10

[0156] An embodiment of the present invention further provides a computer readable storage medium. The computer readable storage medium may be a computer readable storage medium included in the memory in the above embodiment, or may also be a computer readable storage medium that exists separately and is not installed in the terminal. The computer readable storage medium stores one or more programs, the one or more programs are used by one or more processors to execute one method for generating a 2D barcode, the method including:

acquiring private information input by a user, and sending the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

receiving the information access address returned, through the network, by the server; and

generating a 2D barcode including the information access address.

[0157] Assuming that the above is a first possible implementation manner, in a second possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes an instruction for executing the following operation:

the receiving the information access address returned, through the network, by the server includes:

receiving the information access address that is returned by the server through the network and at least includes an information identifier of the private information.

[0158] In a third possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes an instruction for executing the following operation:

receiving an information access address returned, through the network, by the server includes:

receiving the information access address that is returned by the server through the network and at least includes an information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

[0159] In the computer readable storage medium provided in the embodiment of the present invention, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 11

[0160] An embodiment of the present invention provides a graphical user interface, and the graphical user interface is used on a terminal. The terminal includes a touch screen display, a memory, and one or more processors configured to execute one or more programs. The graphical user interface includes:

acquiring private information input by a user, and sending the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

receiving the information access address returned, through the network, by the server; and

generating a 2D barcode including the information access address.

[0161] In the graphical user interface provided in the embodiment of the present invention, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 12

[0162] FIG. 17 is a schematic structural diagram of a server provided in an embodiment of the present invention. The server 1700 may have big differences due to different configurations or performance, and may include one or more central processing units (CPU) 1722 (for example, one or more processors), a memory 1732, and one or more storage media 1730 (for example, one or more massive storage devices) for storing application programs 1742 or data 1744. The memory 1732 and the storage medium 1730 may be stored temporarily or stored permanently. The program stored in the storage medium 1730 may include one or more modules (not shown), and each module may include operations on a series of instructions in the server 1700:

receiving private information sent, through a network, by a terminal, and storing the private information;

generating an information access address corresponding to the private information; and

returning the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

[0163] In another embodiment, the following instructions may be further included:

the generating an information access address corresponding to the private information includes:

acquiring an information identifier of the private information, and storing the information identifier, one information identifier corresponding to one piece of private information; and

generating the information access address including the information identifier of the private information.

[0164] In another embodiment, the following instructions may be further included:

during the acquiring an information identifier of the private information, further including:

acquiring a check identifier and/or a time identifier corresponding to the private information, and storing the check identifier corresponding to the private information; and

the generating the information access address including the information identifier of the private information includes:

generating the information access address including an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information.

[0165] Furthermore, the central processing unit 1722 may be set to communicate with the storage medium 1730, and operations of a series of instructions in the storage medium 1730 are executed on the server 1700.

[0166] The server 1700 may further include one or more power supplies 1726, one or more wired or wireless network interfaces 1750, one or more input/output interfaces 1758, and/or, one or more operating systems 1741, for example, Windows Server™, Mac OS X™, Unix™, Linux™, and FreeBSD™.

[0167] In the server provided in the embodiment of the present invention, private information sent by a terminal through a network is received and stored, an information access address corresponding to the private information is generated and returned to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address; therefore, generation of a 2D barcode is implemented without enciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

[0168] It should be noted that when the terminal for generating a 2D barcode and the server provided in the foregoing embodiments generate a 2D barcode, the foregoing division of functional modules is only used as an example for description. In practical applications, the foregoing functions may be allocated to be accomplished by different functional modules according to needs, that is, the internal structures of the terminal and the server are divided into different functional modules to accomplish all or some of the functions described above. In addition, the terminal for generating a 2D barcode and the server provided in the foregoing embodiments share the same concept with the embodiments of the method for generating a 2D barcode, and reference may be made to the method embodiments for the specific implementation processes of the terminal and the server, which are no longer elaborated herein.

Embodiment 13

[0169] Referring to FIG. 18, an embodiment of the present invention provides a system for generating a 2D barcode, and the system includes: a terminal 1801 and a server 1802.

[0170] The terminal 1801 is configured to acquire private information input by a user, and send the private information to the server 1802 through a network, so that the server 1802 stores the private information, and generates an information access address corresponding to the private information.

[0171] The terminal 1801 is further configured to receive the information access address returned by the server 1802 through the network.

[0172] The terminal 1801 is further configured to generate a 2D barcode including the information access address.

[0173] As an optional embodiment, the terminal 1801 is configured to receive the information access address that is returned by the server 1802 through the network and at least includes an information identifier of the private information.

[0174] As an optional embodiment, the terminal 1801 is configured to receive the information access address that is returned by the server 1802 through the network and at least includes an information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

[0175] It should be noted that there may be one or more terminals 1801 and servers 1802, and reference may be made to Embodiment 5 and Embodiment 6 above for the structures of the terminal 1801 and the server 1802, which are not specifically limited in this embodiment.

[0176] In the system provided in the embodiment of the present invention, private information input by a user is sent to a server through a network, an information access address returned by the server through the network is received, and a 2D barcode including the information access address is generated; therefore, generation of a 2D barcode is implemented without enciphering and deciphering, a cost of generating a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a generated 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 14

[0177] An embodiment of the present invention provides a terminal. Please refer to FIG. 19, which is a schematic structural diagram of a terminal involved in the embodiment of the present invention. The terminal may be configured to implement the method for reading a 2D barcode provided in the foregoing embodiment. Specifically:

[0178] The terminal 1900 may include components such as a Radio Frequency (RF) circuit 210, a memory 220 including one or more computer readable storage media, an input unit 230, a

display unit 240, a sensor 250, an audio circuit 260, a Wireless Fidelity (WiFi) module 270, a processor 280 including one or more processing cores, and a power supply 290. A person skilled in the art may understand that the structure of the terminal shown in FIG. 19 does not constitute a limitation to the terminal, and the terminal may include more components or fewer components than those shown in the figure, or some components may be combined, or a different component deployment may be used.

[0179] The RF circuit 210 may be configured to receive and send signals during an information receiving and sending process or a call process. Particularly, downlink information from a base station is received and then delivered to one or more processors 280 for processing. In addition, related uplink data is sent to the base station. Generally, the RF circuit 210 includes, but is not limited to, an antenna, at least one amplifier, a tuner, one or more oscillators, a subscriber identity module (SIM) card, a transceiver, a coupler, a low noise amplifier (LNA), and a duplexer. In addition, the RF circuit 210 may also communicate with a network and another device by wireless communication. The wireless communication may use any communications standard or protocol, which includes, but is not limited to, Global System for Mobile communications (GSM), General Packet Radio Service (GPRS), Code Division Multiple Access (CDMA), Wideband Code Division Multiple Access (WCDMA), Long Term Evolution (LTE), e-mail, Short Messaging Service (SMS), and the like.

[0180] The memory 220 may be configured to store a software program and module. The processor 280 runs the software program and module stored in the memory 220, to implement various functional applications and data processing. The memory 220 may mainly include a program storage area and a data storage area. The program storage area may store an operating system, an application program required by at least one function (such as a sound playback function and an image display function), and the like. The data storage area may store data (such as audio data and an address book) created according to use of the terminal 1900, and the like. In addition, the memory 220 may include a high speed random access memory, and may also include a non-volatile memory, such as at least one magnetic disk storage device, a flash memory, or another volatile solid-state storage device. Accordingly, the memory 220 may further include a memory controller, so that the processor 280 and the input unit 230 access the memory 220.

[0181] The input unit 230 may be configured to receive input digit or character information, and generate a keyboard, mouse, joystick, optical, or track ball signal input related to the user setting and function control. Specifically, the input unit 230 may include a touch-sensitive surface 231 and another input device 232. The touch-sensitive surface 231, which may also be referred to as

a touch screen or a touch panel, may collect a touch operation of a user on or near the touch-sensitive surface (such as an operation of a user on or near the touch-sensitive surface 231 by using any suitable object or accessory, such as a finger or a stylus), and drive a corresponding connection apparatus according to a preset program. Optionally, the touch-sensitive surface 231 may include two parts: a touch detection apparatus and a touch controller. The touch detection apparatus detects a touch position of the user, detects a signal generated by the touch operation, and transfers the signal to the touch controller. The touch controller receives the touch signal from the touch detection apparatus, converts the touch signal into touch point coordinates, and sends the touch point coordinates to the processor 280. Moreover, the touch controller can receive and execute a command sent from the processor 280. In addition, the touch-sensitive surface 231 may be may be a resistive, capacitive, infrared, or surface sound wave type touch-sensitive surface. In addition to the touch-sensitive surface 231, the input unit 230 may further include the another input device 232. Specifically, the another input device 232 may include, but is not limited to, one or more of a physical keyboard, a functional key (such as a volume control key or a switch key), a track ball, a mouse, and a joystick.

[0182] The display unit 240 may be configured to display information input by the user or information provided for the user, and various graphical user interfaces of the terminal 1900. The graphical user interfaces may be formed by a graph, a text, an icon, a video, and any combination thereof. The display unit 240 may include a display panel 241. Optionally, the display panel 241 may be configured by using a liquid crystal display (LCD), an organic light-emitting diode (OLED), or the like. Further, the touch-sensitive surface 231 may cover the display panel 241. After detecting a touch operation on or near the touch-sensitive surface 231, the touch-sensitive surface 231 transfers the touch operation to the processor 280, so as to determine the type of the touch event. Then, the processor 280 provides a corresponding visual output on the display panel 241 according to the type of the touch event. Although, in FIG. 19, the touch-sensitive surface 231 and the display panel 241 are used as two separate parts to implement input and output functions, in some embodiments, the touch-sensitive surface 231 and the display panel 241 may be integrated to implement the input and output functions.

[0183] The terminal 1900 may further include at least one sensor 250, such as an optical sensor, a motion sensor, and other sensors. Specifically, the optical sensor may include an ambient light sensor and a proximity sensor. The ambient light sensor may adjust luminance of the display panel 241 according to brightness of the ambient light. The proximity sensor may switch off the display panel 241 and/or backlight when the terminal 1900 is moved to the ear. As one type of motion sensor, a gravity acceleration sensor may detect magnitude of accelerations in various

directions (generally on three axes), may detect magnitude and a direction of the gravity when static, and may be applied to an application that recognizes the attitude of the mobile phone (for example, switching between landscape orientation and portrait orientation, a related game, and magnetometer attitude calibration), a function related to vibration recognition (such as a pedometer and a knock), and the like. Other sensors, such as a gyroscope, a barometer, a hygrometer, a thermometer, and an infrared sensor, which may be configured in the terminal 1900, are not further described herein.

[0184] The audio circuit 260, a loudspeaker 261, and a microphone 262 may provide audio interfaces between the user and the terminal 1900. The audio circuit 260 may convert received audio data into an electric signal and transmit the electric signal to the loudspeaker 261. The loudspeaker 261 converts the electric signal into a sound signal for output. On the other hand, the microphone 262 converts a collected sound signal into an electric signal. The audio circuit 260 receives the electric signal and converts the electric signal into audio data, and outputs the audio data to the processor 280 for processing. Then, the processor 280 sends the audio data to, for example, another terminal by using the RF circuit 210, or outputs the audio data to the memory 220 for further processing. The audio circuit 260 may further include an earplug jack, so as to provide communication between a peripheral earphone and the terminal 1900.

[0185] WiFi is a short distance wireless transmission technology. The terminal 1900 may help, by using the WiFi module 270, the user to receive and send e-mails, browse a webpage, access stream media, and so on, which provides wireless broadband Internet access for the user. Although FIG. 19 shows the WiFi module 270, it may be understood that the wireless communications unit is not a necessary component of the terminal 1900, and when required, the wireless communications unit may be omitted as long as the scope of the essence of the present disclosure is not changed.

[0186] The processor 280 is the control center of the terminal 1900, and is connected to various parts of the mobile phone by using various interfaces and lines. By running or executing the software program and/or module stored in the memory 220, and invoking data stored in the memory 220, the processor 280 performs various functions and data processing of the terminal 1900, thereby performing overall monitoring on the mobile phone. Optionally, the processor 280 may include one or more processing cores. Preferably, the processor 280 may integrate an application processor and a modem. The application processor mainly processes an operating system, a user interface, an application program, and the like. The modem mainly processes wireless communication. It may be understood that the foregoing modem may also not be integrated into the processor 280.

[0187] The terminal 1900 further includes the power supply 290 (such as a battery) for supplying power to the components. Preferably, the power supply may be logically connected to the

processor 280 by using a power management system, thereby implementing functions such as charging, discharging and power consumption management by using the power management system. The power supply 290 may further include any component, such as one or more direct current or alternate current power supplies, a re-charging system, a power supply fault detection circuit, a power supply converter or an inverter, and a power supply state indicator.

[0188] Although not shown in the figure, the terminal 1900 may further include a camera, a Bluetooth module, and the like, which are not further described herein. Specifically, in this embodiment, the display unit of the terminal is a touch screen display, and the terminal further includes a memory and one or more programs. The one or more programs are stored in the memory and configured to be executed by one or more processors. The one or more programs contain instructions for executing the following operations:

acquiring a 2D barcode including an information access address, and scanning the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information;

sending the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address; and

receiving the private information returned, through the network, by the server, and using the private information as a reading result of the 2D barcode.

[0189] Assuming that the above is a first possible implementation manner, in a second possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes instructions for executing the following operations:

the information access address at least includes an information identifier of the private information; and

the receiving the private information returned, through the network, by the server includes:

receiving, after the server finds the private information according to the information identifier of the private information included in the information access address, the private information returned through the network.

[0190] In a third possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes instructions for executing the following operations:

the information access address further includes a check identifier and/or a time identifier corresponding to the private information; and

the receiving the private information returned, through the network, by the server includes:

receiving, after the server finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information included in the information access address, the private information returned through the network.

[0191] In the terminal provided in the embodiment of the present invention, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and the private information returned by the server through the network is then received; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 15

[0192] An embodiment of the present invention further provides a computer readable storage medium. The computer readable storage medium may be a computer readable storage medium included in the memory in the above embodiment, or may also be a computer readable storage medium that exists separately and is not installed in the terminal. The computer readable storage medium stores one or more programs, the one or more programs are used by one or more processors to execute one method for reading a 2D barcode, the method including:

acquiring a 2D barcode including an information access address, and scanning the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information;

sending the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address; and

receiving the private information returned, through the network, by the server, and using the private information as a reading result of the 2D barcode.

[0193] Assuming that the above is a first possible implementation manner, in a second possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes instructions for executing the following operations:

the information access address at least includes an information identifier of the private information; and

the receiving the private information returned, through the network, by the server includes:

receiving, after the server finds the private information according to the information identifier of the private information included in the information access address, the private information returned through the network.

[0194] In a third possible implementation manner provided on the basis of the first possible implementation manner, the memory of the terminal further includes instructions for executing the following operations:

the information access address further includes a check identifier and/or a time identifier corresponding to the private information; and

the receiving the private information returned, through the network, by the server includes:

receiving, after the server finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information included in the information access address, the private information returned through the network.

[0195] In the computer readable storage medium provided in the embodiment of the present invention, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and the private information returned by the server through the network is then received; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 16

[0196] An embodiment of the present invention provides a graphical user interface, and the graphical user interface is used on a terminal. The terminal includes a touchscreen display, a

memory, and one or more processors configured to execute one or more programs. The graphical user interface includes:

acquiring a 2D barcode including an information access address, and scanning the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information;

sending the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address; and

receiving the private information returned, through the network, by the server, and using the private information as a reading result of the 2D barcode.

[0197] In the graphical user interface provided in the embodiment of the present invention, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and the private information returned by the server through the network is then received; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

Embodiment 17

[0198] FIG. 20 is a schematic structural diagram of a server provided in an embodiment of the present invention. The server 2000 may have big differences due to different configurations or performance, and may include one or more central processing units (CPU) 2022 (for example, one or more processors), a memory 2032, and one or more storage media 2030 (for example, one or more massive storage devices) for storing application programs 2042 or data 2044. The memory 2032 and the storage medium 2030 may be stored temporarily or stored permanently. The program stored in the storage medium 2030 may include one or more modules (not shown), and each module may include operations on a series of instructions in the server 2000:

receiving an information access address sent, through a network, by a terminal and for accessing private information;

searching prestored private information for private information corresponding to the information access address; and

returning the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

[0199] In another embodiment, the following instructions may be further included:

[0200] The information access address includes an information identifier of the private information; and

the searching prestored private information for private information corresponding to the information access address includes:

searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0201] In another embodiment, the following instructions may be further included:

the information access address further includes a check identifier and/or a time identifier; and

the searching the prestored private information for the private information corresponding to the information identifier included in the information access address includes:

determining whether the check identifier included in the information access address is consistent with a prestored check identifier, and/or determining whether the time identifier included in the information access address is ineffective; and

executing, if the check identifier included in the information access address is consistent with the prestored check identifier, and/or the time identifier included in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier included in the information access address.

[0202] Furthermore, the central processing unit 2022 may be set to communicate with the storage medium 2030, and operations of a series of instructions in the storage medium 2030 are executed on the server 2000.

[0203] The server 2000 may further include one or more power supplies 2026, one or more wired or wireless network interfaces, 2050, one or more input/output interfaces 2058, and/or, one or more operating systems 2041, for example, Windows Server™, Mac OS X™, Unix™, Linux™, and FreeBSD™.

[0204] In the server provided in the embodiment of the present invention, an information access address sent by a terminal through a network is received, and private information corresponding to the information access address found from prestored private information is returned to the terminal through the network, so that the terminal uses the private information as a

reading result of a 2D barcode; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

[0205] It should be noted that when the terminal for reading a 2D barcode and the server provided in the foregoing embodiments read a 2D barcode, the foregoing division of functional modules is only used as an example for description. In practical applications, the foregoing functions may be allocated to be accomplished by different functional modules according to needs, that is, the internal structures of the terminal and the server are divided into different functional modules to accomplish all or some of the functions described above. In addition, the terminal for generating a 2D barcode and the server provided in the foregoing embodiments share the same concept with the embodiments of the method for reading a 2D barcode, and reference may be made to the method embodiments for the specific implementation processes of the terminal and the server, which are no longer elaborated herein.

Embodiment 18

[0206] Referring to FIG. 21, an embodiment of the present invention provides a system for reading a 2D barcode. The system includes: a terminal 2101 and a server 2102.

[0207] The terminal 2101 is configured to acquire a 2D barcode including an information access address, and scan the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information.

[0208] The terminal 2101 is further configured to send the information access address to the server 2102 through a network, so that the server 2102 searches for corresponding private information according to the information access address.

[0209] The terminal 2101 is further configured to receive the private information returned, through the network, by the server 2102, and use the private information as a reading result of the 2D barcode.

[0210] As an optional embodiment, the information access address obtained through scanning by the terminal 2101 at least includes an information identifier of the private information.

[0211] The terminal 2101 is configured to receive, after the server 2102 finds the private information according to the information identifier of the private information included in the information access address, the private information returned through the network.

[0212] As an optional embodiment, the information access address obtained through scanning by the terminal 2101 further includes a check identifier and/or a time identifier corresponding to the private information.

[0213] The terminal 2101 is configured to receive, after the server 2102 finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information included in the information access address, the private information returned through the network.

[0214] It should be noted that there may be one or more terminals 1801 and servers 1802, and reference may be made to Embodiment 7 and Embodiment 8 above for the structures of the terminal 1801 and the server 1802, which are not specifically limited in this embodiment.

[0215] In the system provided in the embodiment of the present invention, a 2D barcode including an information access address is acquired and scanned to obtain the information access address included in the 2D barcode, the information access address is sent to a server through a network, and the private information returned by the server through the network is then received; therefore, reading of a 2D barcode is implemented without deciphering, a cost of reading a 2D barcode is reduced, an application scope of a 2D barcode is broadened, and a read 2D barcode includes an information access address, so that security of private information is ensured.

[0216] The sequence numbers of the above embodiments of the present invention are merely for the convenience of description, and do not imply the preference among the embodiments.

[0217] A person of ordinary skill in the art may understand that all or some of the steps of the foregoing embodiments may be implemented by using hardware, or may be implemented by a program instructing relevant hardware. The program may be stored in a computer readable storage medium. The storage medium may be a read-only memory, a magnetic disk, an optical disc, or the like.

[0218] The foregoing descriptions are merely preferred embodiments of the present invention, but are not intended to limit the present invention. Any modification, equivalent replacement, or improvement made within the spirit and principle of the present invention shall fall within the protection scope of the present invention.

CLAIMS

What is claimed is:

1. A method for generating a 2D barcode, wherein the method comprises:

acquiring private information input by a user, and sending the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

receiving the information access address returned, through the network, by the server; and

generating a 2D barcode comprising the information access address.

2. The method according to claim 1, wherein the receiving the information access address returned, through the network, by the server comprises:

receiving the information access address that is returned by the server through the network and at least comprises an information identifier of the private information.

3. The method according to claim 1, wherein the receiving the information access address returned, through the network, by the server comprises:

receiving the information access address that is returned by the server through the network and at least comprises an information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

4. A method for generating a 2D barcode, wherein the method comprises:

receiving private information sent, through a network, by a terminal, and storing the private information;

generating an information access address corresponding to the private information; and

returning the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

5. The method according to claim 4, wherein the generating an information access address corresponding to the private information comprises:

acquiring an information identifier of the private information, and storing the information identifier, one information identifier corresponding to one piece of private information; and

generating the information access address comprising the information identifier of the private information.

6. The method according to claim 5, during the acquiring an information identifier of the private information, further comprising:

acquiring a check identifier and/or a time identifier corresponding to the private information, and storing the check identifier corresponding to the private information;

the generating the information access address comprising the information identifier of the private information comprises:

generating the information access address comprising the information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information.

7. A method for reading a 2D barcode, wherein the method comprises:

acquiring a 2D barcode comprising an information access address, and scanning the 2D barcode, to obtain the information access address comprised in the 2D barcode, the information access address being for accessing private information;

sending the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address; and

receiving the private information returned, through the network, by the server, and using the private information as a reading result of the 2D barcode.

8. The method according to claim 7, wherein the information access address at least comprises an information identifier of the private information; and

the receiving the private information returned, through the network, by the server comprises:

receiving, after the server finds the private information according to the information identifier of the private information comprised in the information access address, the private information returned through the network.

9. The method according to claim 7, wherein the information access address further comprises a check identifier and/or a time identifier corresponding to the private information; and

the receiving the private information returned, through the network, by the server comprises:

receiving, after the server finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information comprised in the information access address, the private information returned through the network.

10. A method for reading a 2D barcode, wherein the method comprises:

receiving an information access address sent, through a network, by a terminal and for accessing private information;

searching prestored private information for private information corresponding to the information access address; and

returning the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

11. The method according to claim 10, wherein the information access address comprises an information identifier of the private information; and

the searching prestored private information for private information corresponding to the information access address comprises:

searching the prestored private information for the private information corresponding to the information identifier comprised in the information access address.

12. The method according to claim 11, wherein the information access address further comprises a check identifier and/or a time identifier;

the searching the prestored private information for the private information corresponding to the information identifier comprised in the information access address comprises:

determining whether the check identifier comprised in the information access address is consistent with a prestored check identifier, and/or determining whether the time identifier comprised in the information access address is ineffective;

executing, if the check identifier comprised in the information access address is consistent with the prestored check identifier, and/or the time identifier comprised in the information access address is not ineffective, the step of searching the prestored private information for the private information corresponding to the information identifier comprised in the information access address.

13. A terminal for generating a 2D barcode, wherein the terminal comprises:

an acquisition module, configured to acquire private information input by a user;

a sending module, configured to send the private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information;

a receiving module, configured to receive the information access address returned, through the

network, by the server; and

a generation module, configured to generate a 2D barcode comprising the information access address.

14. The terminal according to claim 13, wherein the receiving module is configured to receive the information access address that is returned by the server through the network and at least comprises an information identifier of the private information.

15. The terminal according to claim 14, wherein the receiving module is configured to receive the information access address that is returned by the server through the network and at least comprises the information identifier of the private information and a check identifier and/or a time identifier corresponding to the private information.

16. A server, wherein the server comprises:

a receiving module, configured to receive private information sent, through a network, by a terminal;

a storage module, configured to store the private information;

a generation module, configured to generate an information access address corresponding to the private information; and

a return module, configured to return the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address.

17. The server according to claim 16, wherein the generation module comprises:

an acquisition unit, configured to acquire an information identifier of the private information;

a storage unit, configured to store the information identifier, one information identifier corresponding to one piece of private information; and

a generation unit, configured to generate the information access address comprising the information identifier of the private information.

18. The server according to claim 17, wherein the acquisition unit is further configured to acquire, when the information identifier of the private information is acquired, a check identifier and/or a time identifier corresponding to the private information;

the storage unit is further configured to store the check identifier corresponding to the private information; and

the generation unit is configured to generate the information access address comprising the information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information.

19. A terminal for reading a 2D barcode, wherein the terminal comprises:

an acquisition module, configured to acquire a 2D barcode comprising an information access address;

a scanning module, configured to scan the 2D barcode, to obtain the information access address comprised in the 2D barcode, the information access address being for accessing private information;

a sending module, configured to send the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address;

a receiving module, configured to receive the private information returned, through the network, by the server; and

a reading module, configured to use the private information as a reading result of the 2D barcode.

20. The terminal according to claim 19, wherein the information access address obtained through scanning by the scanning module at least comprises an information identifier of the private information; and

the receiving module is configured to receive, after the server finds the private information according to the information identifier of the private information comprised in the information access address, the private information returned through the network.

21. The terminal according to claim 19, wherein the information access address obtained through scanning by the scanning module further comprises a check identifier and/or a time identifier corresponding to the private information; and

the receiving module is configured to receive, after the server finds the private information according to an information identifier of the private information and the check identifier and/or the time identifier corresponding to the private information comprised in the information access address, the private information returned through the network.

22. A server, wherein the server comprises:

a receiving module, configured to receive an information access address sent, through a

network, by a terminal and for accessing private information;

a search module, configured to search prestored private information for private information corresponding to the information access address; and

a return module, configured to return the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode.

23. The server according to claim 22, wherein the information access address received by the receiving module comprises an information identifier of the private information; and

the search module is configured to search the prestored private information for the private information corresponding to the information identifier comprised in the information access address.

24. The server according to claim 23, wherein the information access address received by the receiving module further comprises a check identifier and/or a time identifier; and

the search module comprises:

a determination unit, configured to determine whether the check identifier comprised in the information access address is consistent with a prestored check identifier, and/or determine whether the time identifier comprised in the information access address is ineffective; and

an execution unit, configured to execute, when the check identifier comprised in the information access address is consistent with the prestored check identifier, and/or the time identifier comprised in the information access address is not ineffective, a step of searching the prestored private information for the private information corresponding to the information identifier comprised in the information access address.

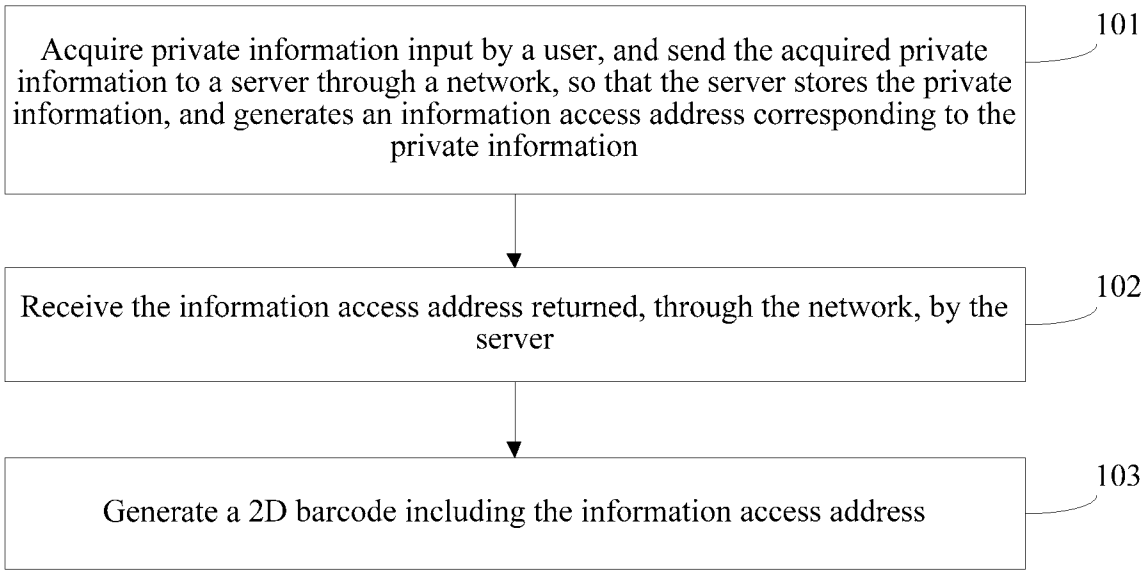
Acquire private information input by a user, and send the acquired private information to a server through a network, so that the server stores the private information, and generates an information access address corresponding to the private information
101
Receive the information access address returned, through the network, by the server
102
Generate a 2D barcode including the information access address
103

FIG. 1

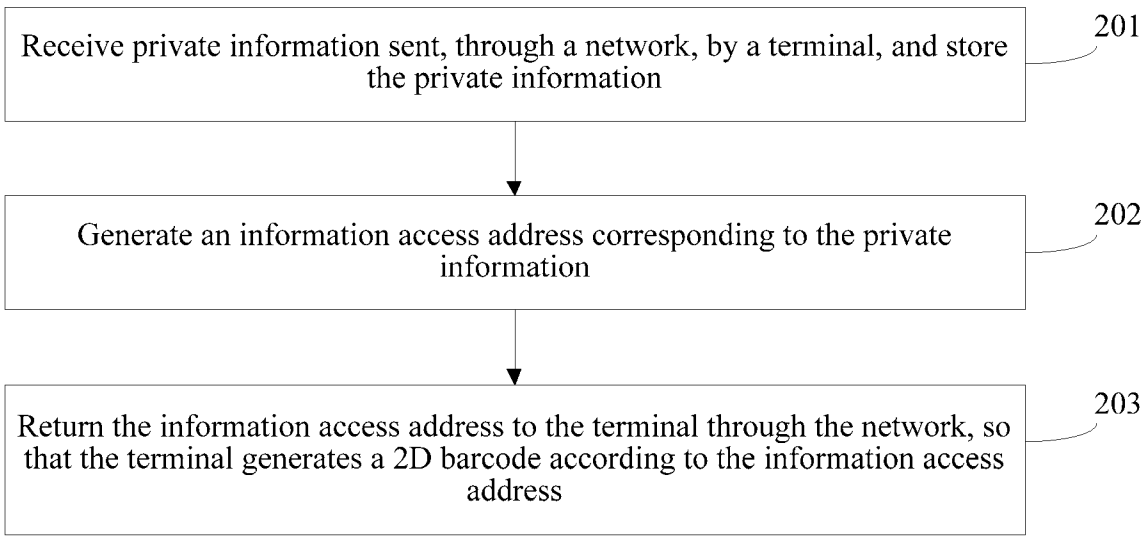
Receive private information sent, through a network, by a terminal, and store the private information
201
Generate an information access address corresponding to the private information
202
Return the information access address to the terminal through the network, so that the terminal generates a 2D barcode according to the information access address
203

FIG. 2

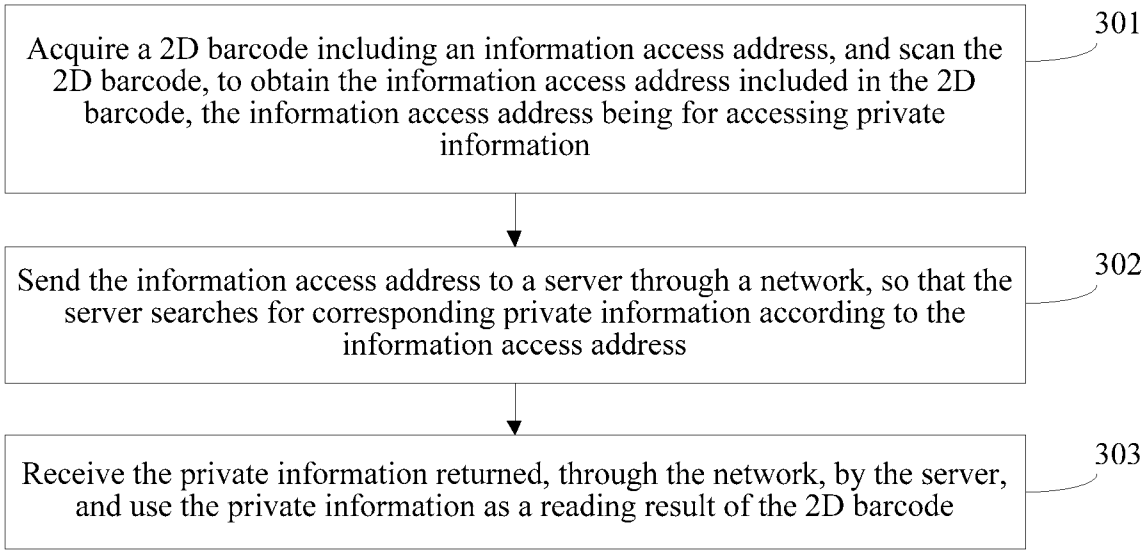
Acquire a 2D barcode including an information access address, and scan the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information
301
Send the information access address to a server through a network, so that the server searches for corresponding private information according to the information access address
302
Receive the private information returned, through the network, by the server, and use the private information as a reading result of the 2D barcode
303

FIG. 3

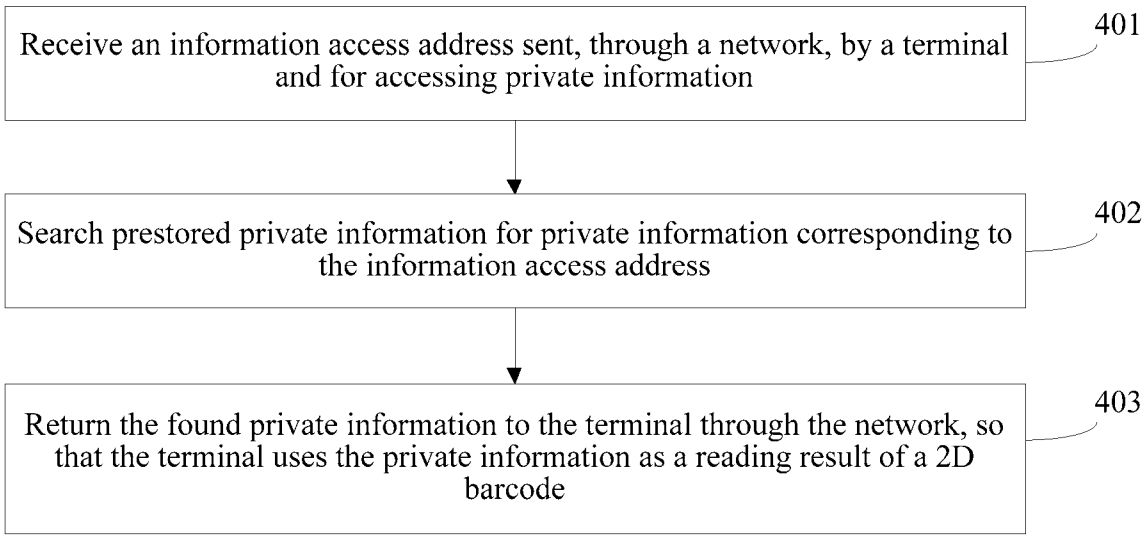
Receive an information access address sent, through a network, by a terminal and for accessing private information
401
Search prestored private information for private information corresponding to the information access address
402
Return the found private information to the terminal through the network, so that the terminal uses the private information as a reading result of a 2D barcode
403

FIG. 4

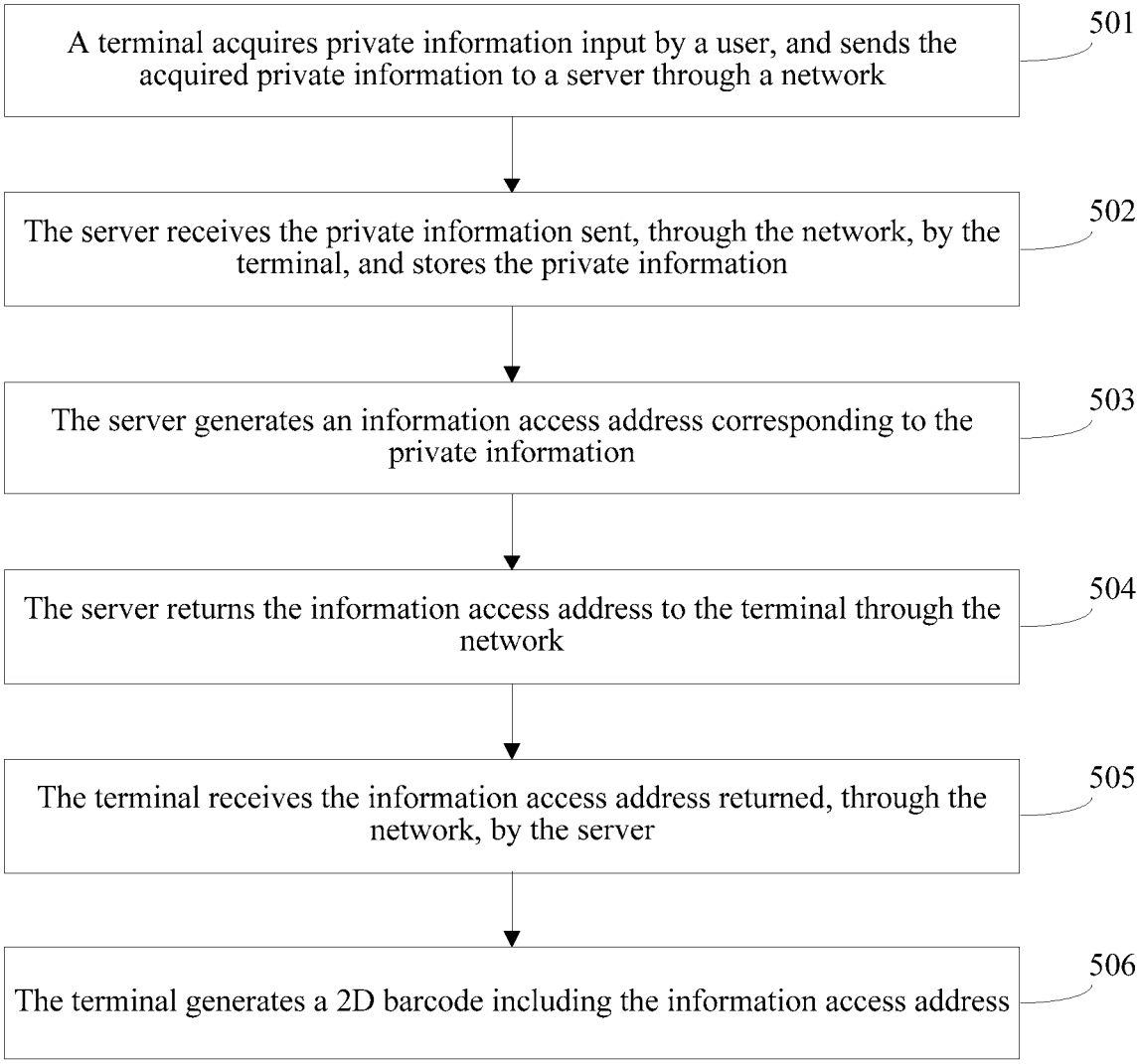
A terminal acquires private information input by a user, and sends the acquired private information to a server through a network
501
The server receives the private information sent, through the network, by the terminal, and stores the private information
502
The server generates an information access address corresponding to the private information
503
The server returns the information access address to the terminal through the network
504
The terminal receives the information access address returned, through the network, by the server
505
The terminal generates a 2D barcode including the information access address
506

FIG. 5

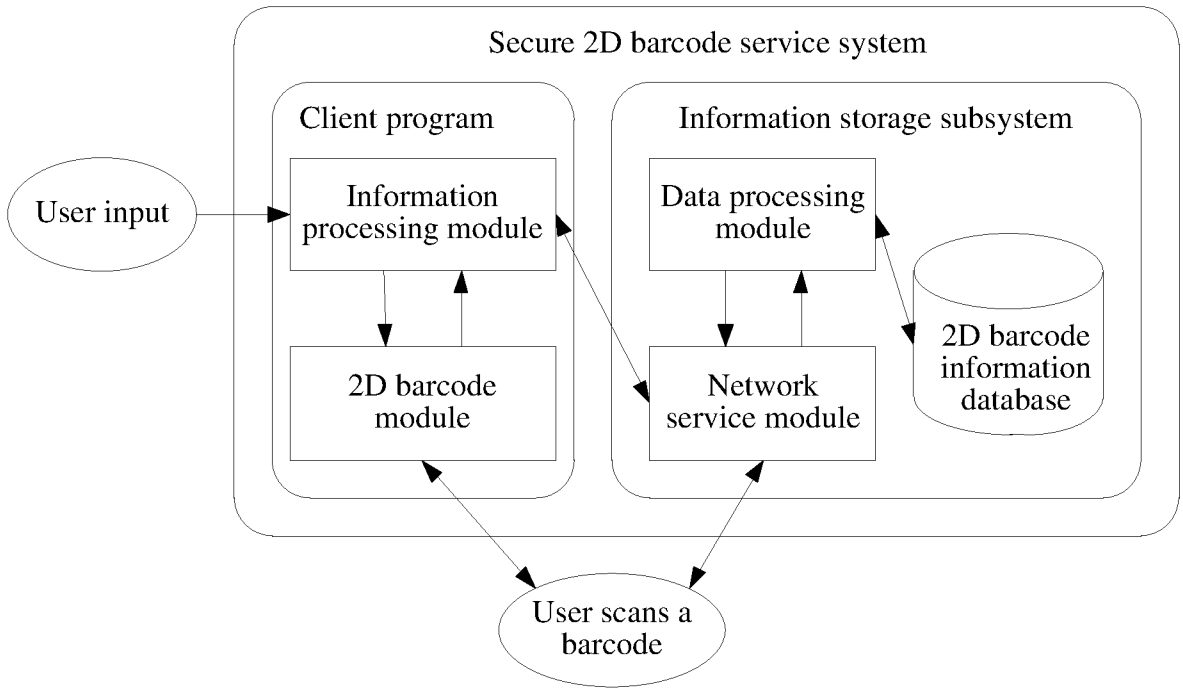
Secure 2D barcode service system
Client program
Information storage subsystem
User input
Information processing module
Data processing module
2D barcode information database
2D barcode module
Network service module
User scans a barcode

FIG. 6

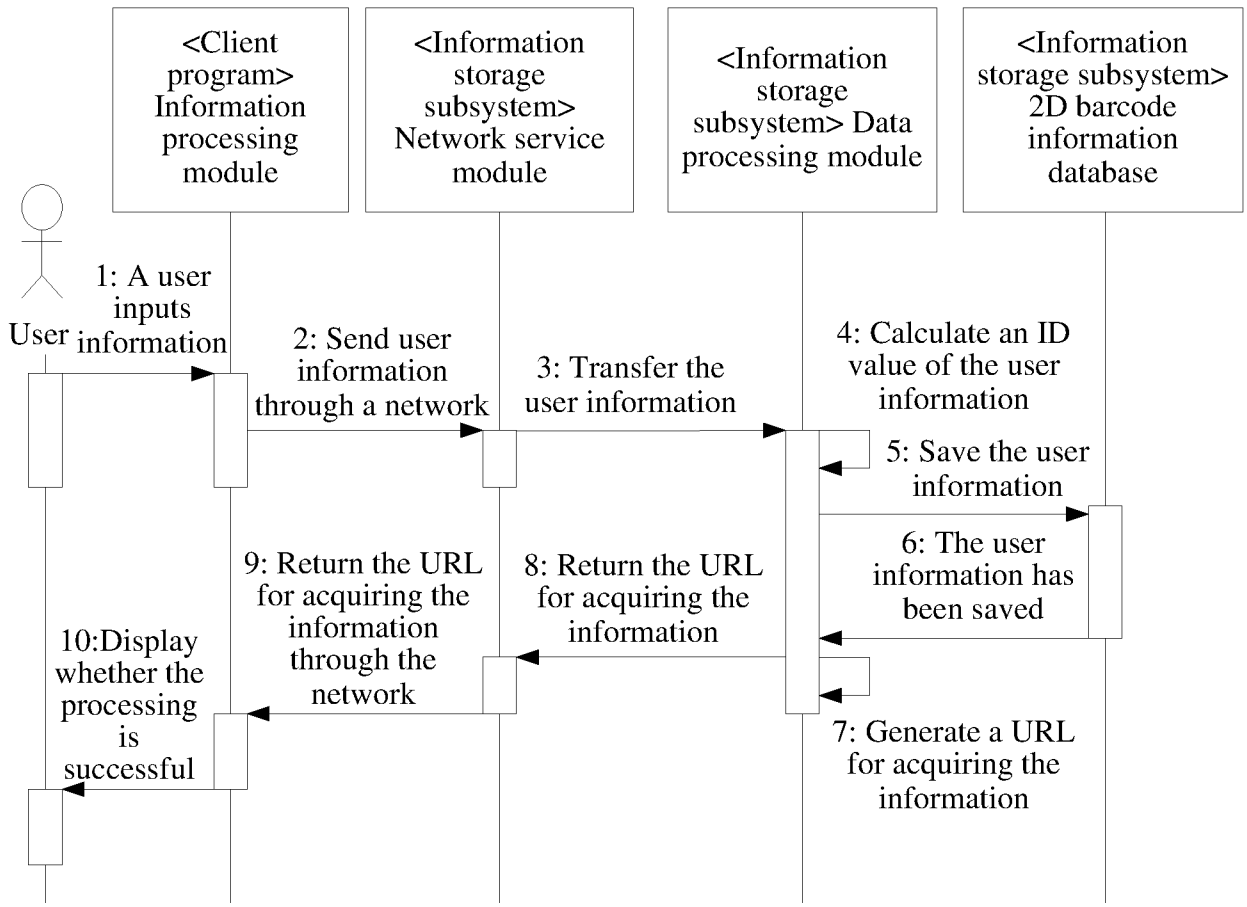
<Client program> Information processing module
<Information storage subsystem> Network service module
<Information storage subsystem> Data processing module
<Information storage subsystem> 2D barcode information database
User
1: A user inputs information
2: Send user information through a network
3: Transfer the user information
4: Calculate an ID value of the user information
5: Save the user information
6: The user information has been saved
7: Generate a URL for acquiring the information
8: Return the URL for acquiring the information
9: Return the URL for acquiring the information through the network
10:Display whether the processing is successful

FIG. 7

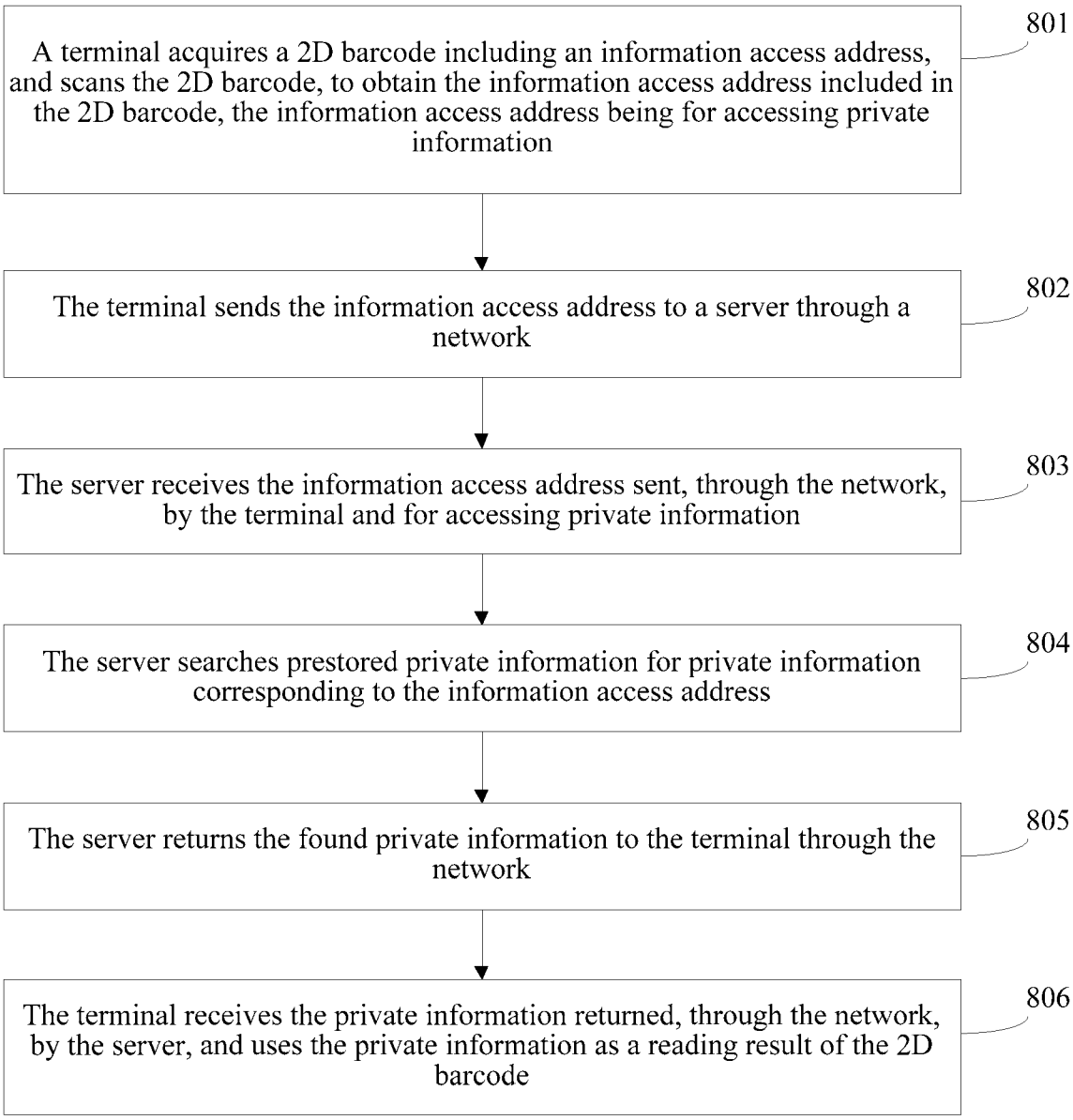
A terminal acquires a 2D barcode including an information access address, and scans the 2D barcode, to obtain the information access address included in the 2D barcode, the information access address being for accessing private information
801
The terminal sends the information access address to a server through a network
802
The server receives the information access address sent, through the network, by the terminal and for accessing private information
803
The server searches prestored private information for private information corresponding to the information access address
804
The server returns the found private information to the terminal through the network
805
The terminal receives the private information returned, through the network, by the server, and uses the private information as a reading result of the 2D barcode
806

FIG. 8

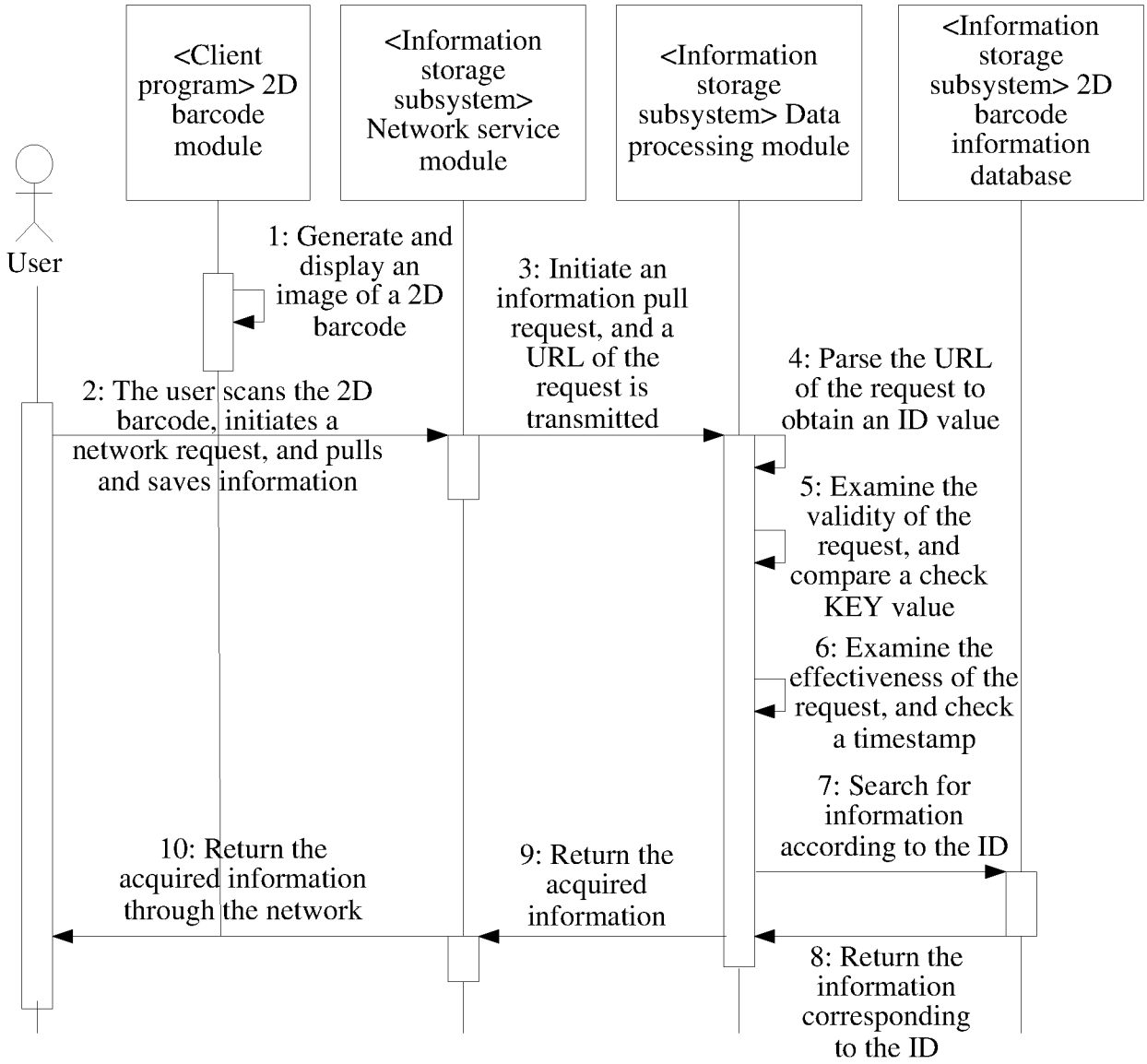
<Client program> 2D barcode module
<Information storage subsystem> Network service module
<Information storage subsystem> Data processing module
<Information storage subsystem> 2D barcode information database
User
1: Generate and display an image of a 2D barcode
2: The user scans the 2D barcode, initiates a network request, and pulls and saves information
3: Initiate an information pull request, and a URL of the request is transmitted
4: Parse the URL of the request to obtain an ID value
5: Examine the validity of the request, and compare a check KEY value
6: Examine the effectiveness of the request, and check a timestamp
7: Search for information according to the ID
8: Return the information corresponding to the ID
9: Return the acquired information
10: Return the acquired information through the network

FIG. 9

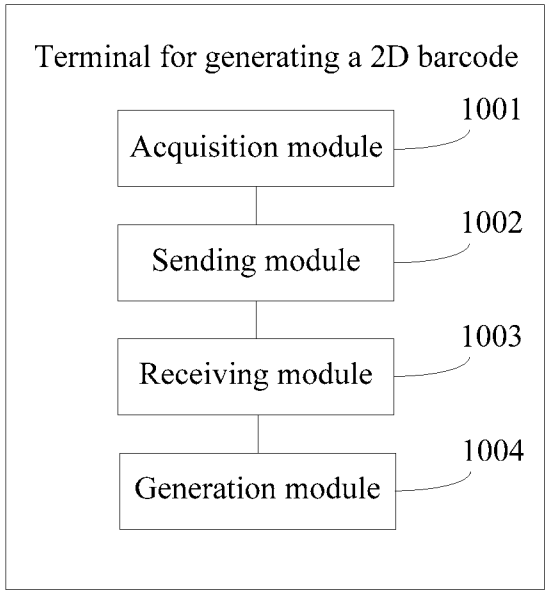
Terminal for generating a 2D barcode
Acquisition module
1001
Sending module
1002
Receiving module
1003
Generation module
1004

FIG. 10

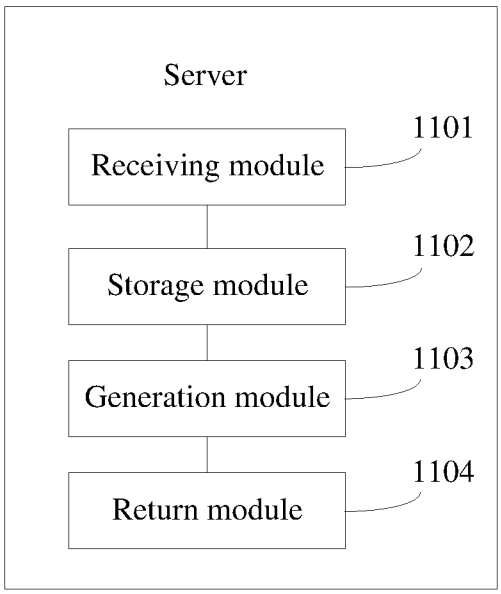
Server
Receiving module
1101
Storage module
1102
Generation module
1103
Return module
1104

FIG. 11

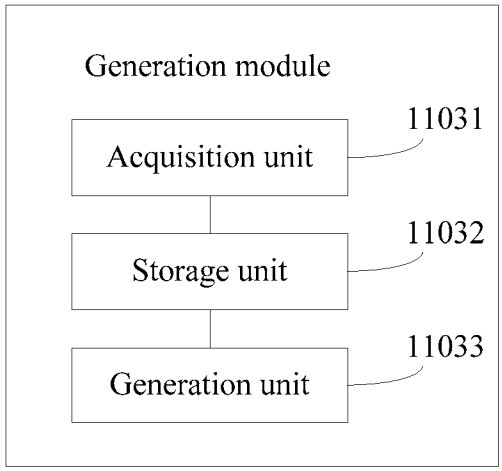
Generation module
11031
Acquisition unit
11032
Storage unit
11033
Generation unit

FIG. 12

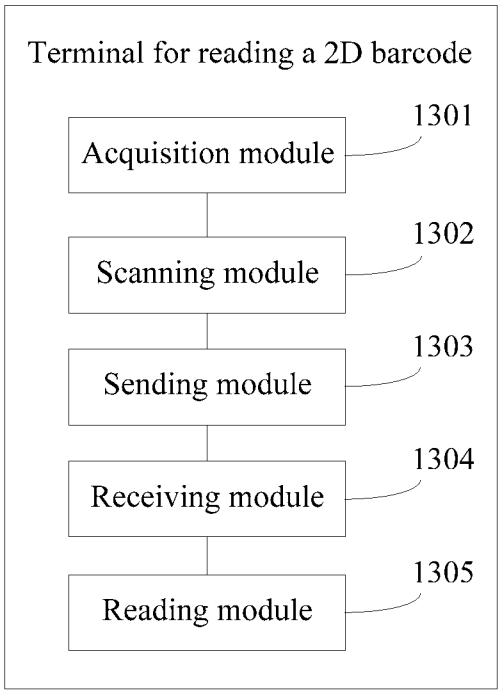
Terminal for reading a 2D barcode
1301
Acquisition module
1302
Scanning module
1303
Sending module
1304
Receiving module
1305
Reading module

FIG. 13

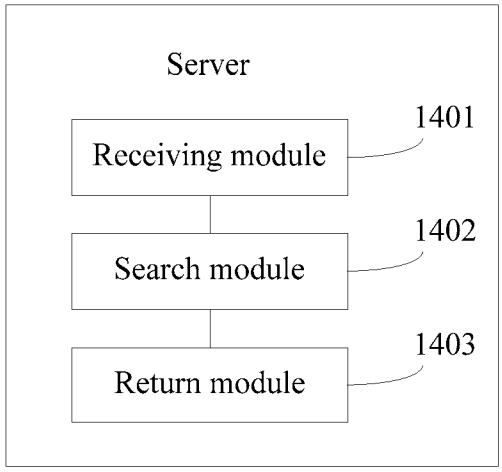
Server
Receiving module
1401
Search module
1402
Return module
1403

FIG. 14

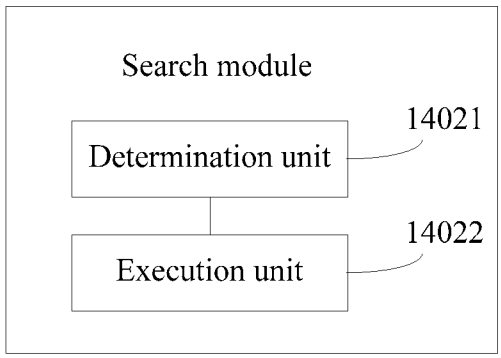
Search module
Determination unit
14021
Execution unit
14022

FIG. 15

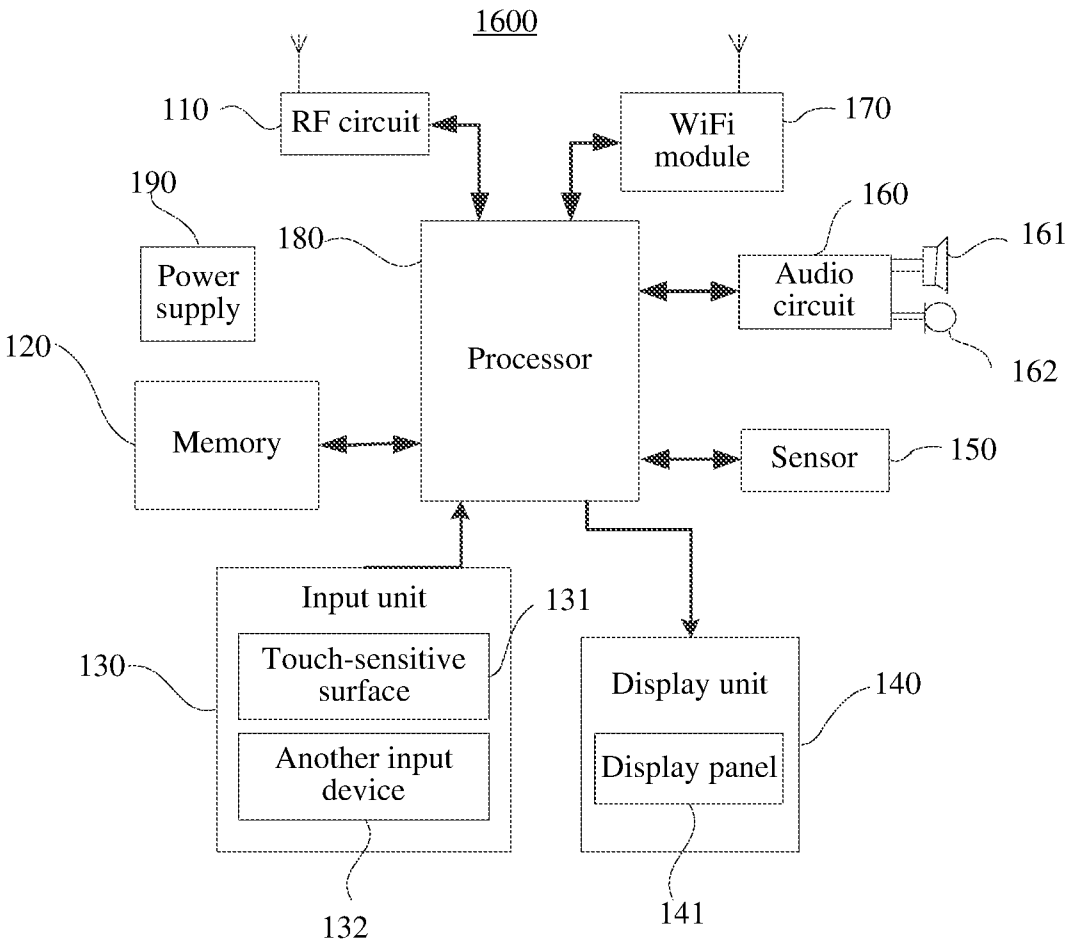
1600
110
RF circuit
WiFi module
170
190
Power supply
180
160
161
Audio circuit
120
Processor
162
Memory
Sensor
150
Input unit
131
130
Touch-sensitive surface
Another input device
Display unit
140
Display panel
132
141

FIG. 16

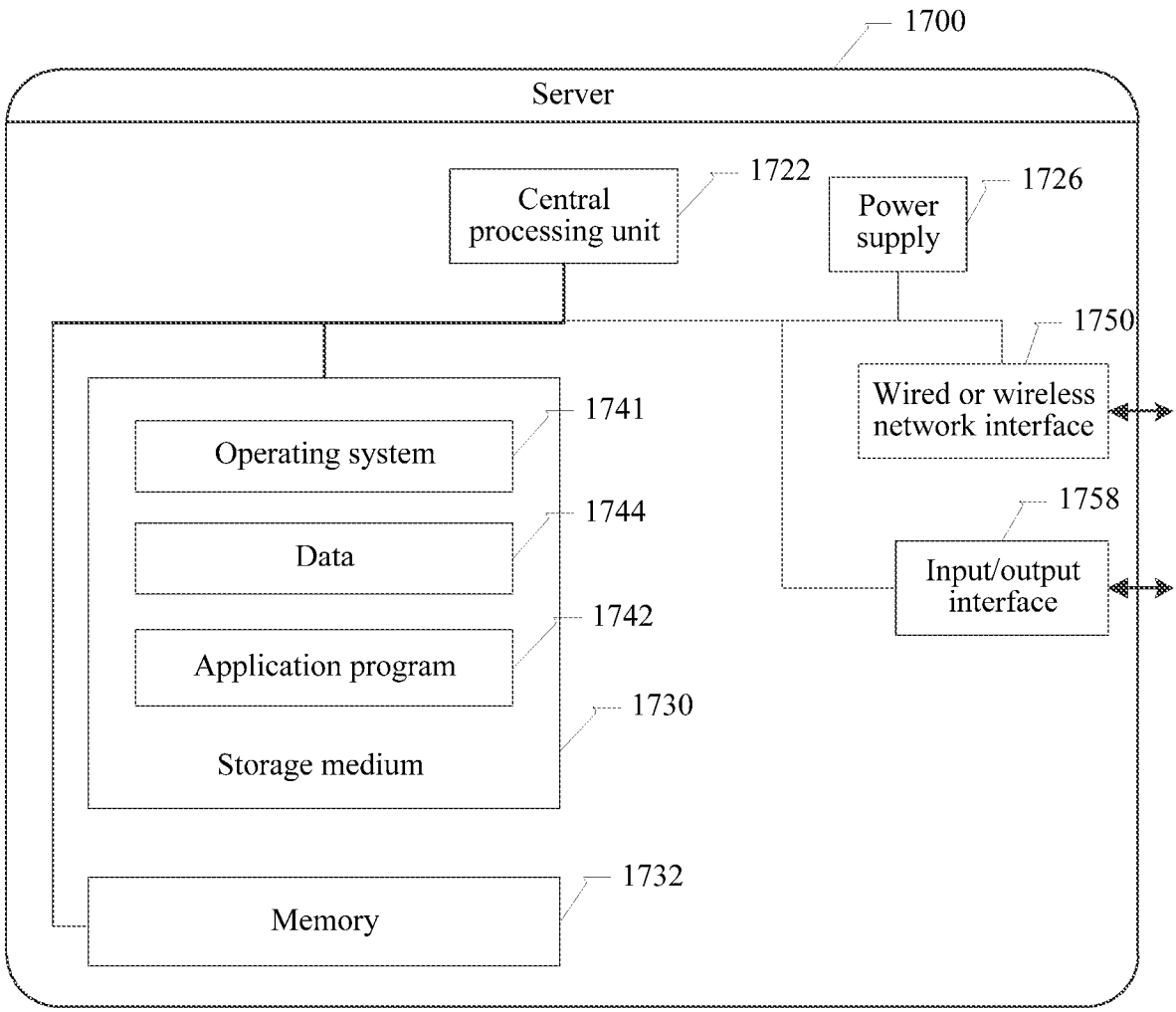
1700
Server
Central processing unit
1722
Power supply
1726
1750
Wired or wireless network interface
1741
Operating system
1744
Data
1758
Input/output interface
1742
Application program
1730
Storage medium
1732
Memory

FIG. 17

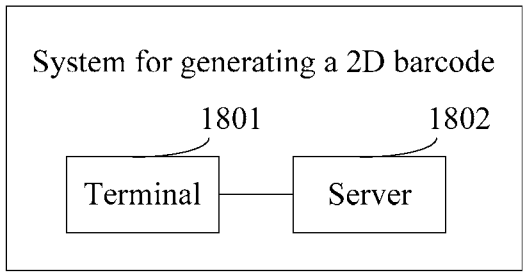
System for generating a 2D barcode
1801
1802
Terminal
Server

FIG. 18

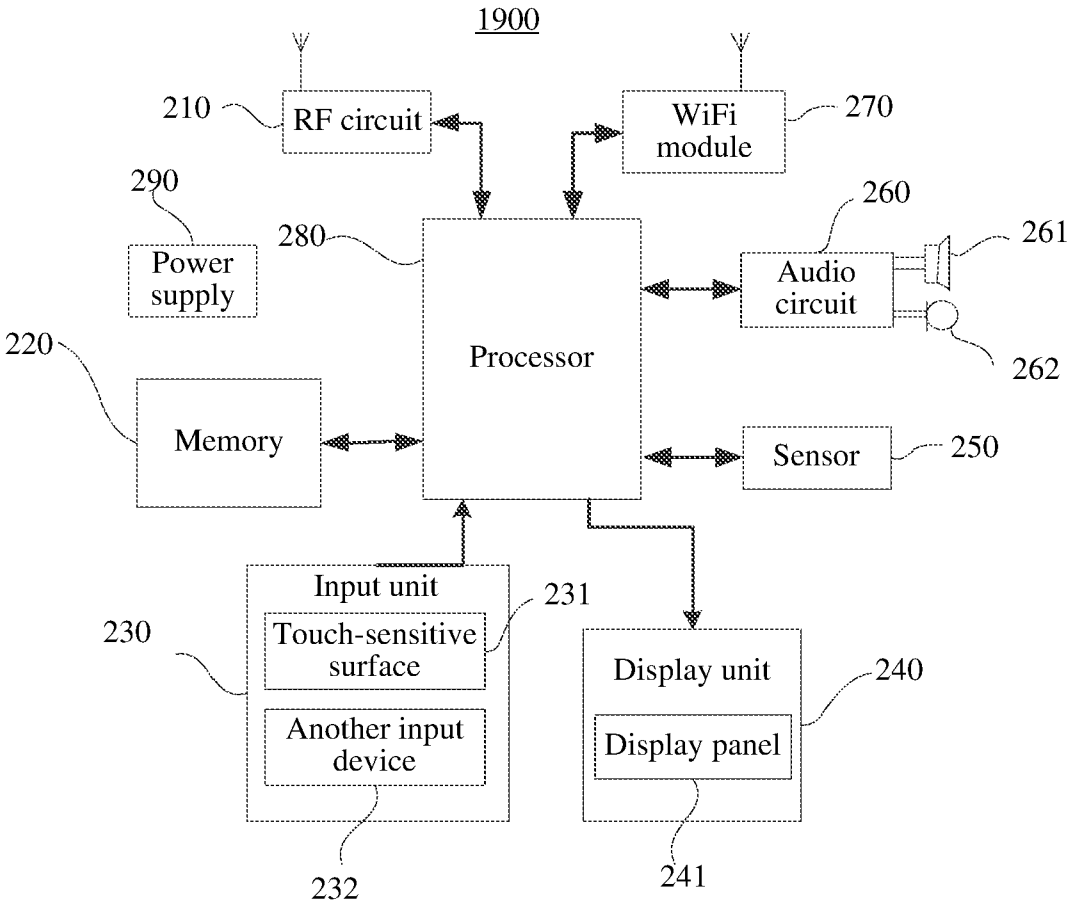
1900
210
RF circuit
WiFi module
270
290
Power supply
280
260
261
Audio circuit
Processor
262
220
Memory
Sensor
250
Input unit
231
230
Touch-sensitive surface
Another input device
Display unit
240
Display panel
232
241

FIG. 19

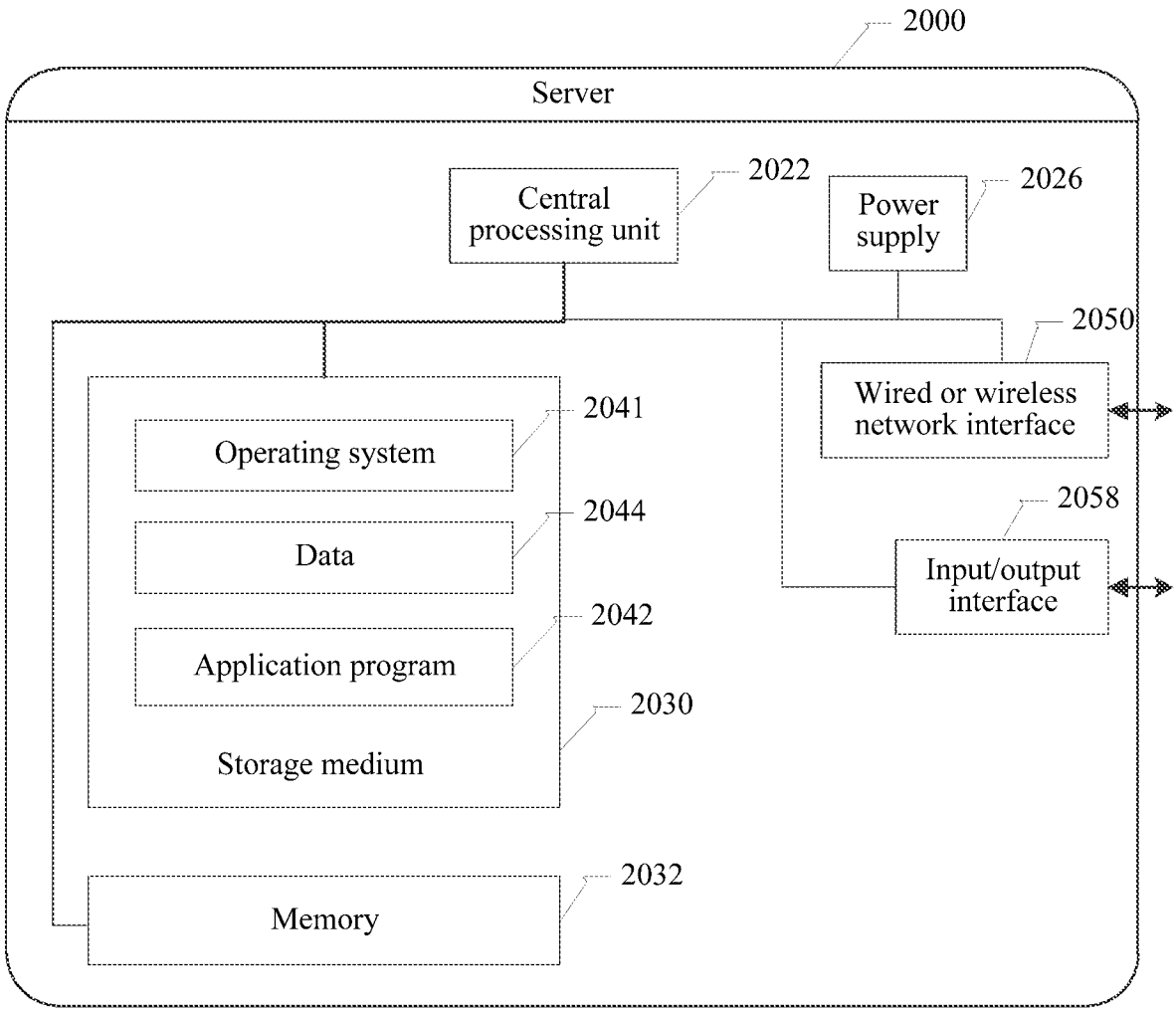
2000
Server
Central processing unit
2022
Power supply
2026
2050
Wired or wireless network interface
2041
Operating system
2044
Data
2042
Application program
2030
Storage medium
2058
Input/output interface
2032
Memory

FIG. 20

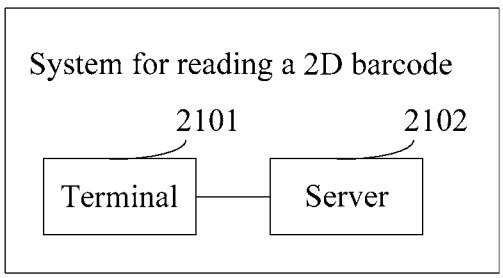
System for reading a 2D barcode
2101
2102
Terminal
Server

FIG. 21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2015/076861

A. CLASSIFICATION OF SUBJECT MATTER

G06K 19/06(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNKI, CNPAT, WPI, EPODOC: barcode, private, privacy, address, network, server, time, verif+, identif+, check

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 104376353 A (TENCENT TECHNOLOGY SHENZHEN COMPANY LIMITED) 25 February 2015 (2015-02-25) claims 1-24	1-24
X	CN 102833353 A (TENCENT TECHNOLOGY SHENZHEN COMPANY LIMITED) 19 December 2012 (2012-12-19) description, paragraphs [0056]-[0077]	1-24
A	CN 103078868 A (GUANGZHOU DUOYI NETWORK TECHNOLOGY CO.) 01 May 2013 (2013-05-01) the whole document	1-24
A	CN 103065116 A (WANG, SHILEI) 24 April 2013 (2013-04-24) the whole document	1-24
A	US 2002131071 A1 (PARRY, TRAVIS J.) 19 September 2002 (2002-09-19) the whole document	1-24

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 June 2015	**29 June 2015**
Name and mailing address of the ISA/CN **STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA** **6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer **MU,Ying** Telephone No. **(86-10)62413989**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2015/076861

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	104376353	A	25 February 2015	None			
CN	102833353	A	19 December 2012	US	2014103108	A1	17 April 2014
				WO	2014044183	A1	27 March 2014
				TW	201413470	A	01 April 2014
CN	103078868	A	01 May 2013	None			
CN	103065116	A	24 April 2013	None			
US	2002131071	A1	19 September 2002	US	6972863	B2	06 December 2005