US Patent & Trademark Office
Patent Public Search | Text View

United States Patent Application Publication	20250265434
Kind Code	A1
Publication Date	August 21, 2025
Inventor(s)	OGAWA; Kazuaki

NON-TRANSITORY COMPUTER-READABLE RECORDING MEDIUM STORING COMPUTER-READABLE INSTRUCTIONS FOR TERMINAL DEVICE, TERMINAL DEVICE, AND METHOD EXECUTED BY TERMINAL DEVICE

Abstract

The terminal device may detect that a predetermined setting of a communication device has been completed. The terminal device may, in a case where completion of the predetermined setting is detected, output first service information corresponding to a first service related to the communication device.

Inventors: **OGAWA; Kazuaki (Ichinomiya, JP)**

Applicant: **BROTHER KOGYO KABUSHIKI KAISHA** (Nagoya, JP)

Family ID: **1000008488848**

Appl. No.: **19/057141**

Filed: **February 19, 2025**

Foreign Application Priority Data

JP	2024-023543	Feb. 20, 2024

Publication Classification

Int. Cl.: **G06K15/02** (20060101); **H04N1/00** (20060101)

U.S. Cl.:

CPC **G06K15/1805** (20130101); **H04N1/00925** (20130101);

Background/Summary

REFERENCE TO RELATED APPLICATION
[0001] This application claims priority to Japanese Patent Application No. 2024-023543 filed on Feb. 20, 2024. The entire content of the priority application is incorporated herein by reference.
BACKGROUND ART
[0002] A toner automatic delivery system including an MFP, an information management server, and a retailer server is known. When the MFP determines that a toner remaining level is smaller than a predetermined value and "toner is to be delivered" is not set as toner delivery information, the MFP displays a screen recommending to conclude a toner delivery contract.
SUMMARY
[0003] The present teachings provide an art configured to improve user convenience.
[0004] The present teaching discloses a non-transitory computer-readable recording medium storing computer-readable instructions for a terminal device comprising a processor. The computer-readable instructions, when executed by the processor, may cause the terminal device to: detect that a predetermined setting of a communication device has been completed; and in a case where completion of the predetermined setting is detected, output first service information corresponding to a first service related to the communication device.
[0005] According to the above configuration, the terminal device sends the first output instruction to the communication device in the case where the completion of the predetermined setting of the communication device is detected. Due to this, the user can acknowledge the first service information. Accordingly, user convenience can be improved.
[0006] An above-mentioned computer-readable instructions, a terminal device realized by the above-described non-transitory computer-readable recording medium, and a method of controlling the terminal device are novel and useful. Also, a communication system comprising a terminal device and a communication device is novel and useful.

Description

BRIEF DESCRIPTION OF DRAWINGS
[0007] FIG. **1** illustrates a configuration of a communication system.
[0008] FIG. **2** illustrates an example of respective tables.
[0009] FIG. **3** illustrates a sequence diagram of a preparation process.
[0010] FIG. **4** illustrates a flowchart of a first guidance process executed by a terminal device.
[0011] FIG. **5** illustrates a flowchart of a second guidance process executed by the terminal device.
[0012] FIG. **6** illustrates a flowchart of a second guidance process executed by a terminal device according to a second embodiment.
DESCRIPTION
First Embodiment
(Configuration of Communication System **2**; FIG. **1**)
[0013] As shown in FIG. **1**, a communication system **2** comprises a printer **10**, a terminal device **100**, a management server **200**, a first service providing server **300**, and a second service providing server **400**. Hereafter, the service providing server will be referred to as "SP server". The printer **10** and the terminal device **100** are configured to communicate with each other via a LAN **4**. The printer **10**, the terminal device **100**, the management server **200**, the first SP server **300**, and the second SP server **400** are connected to the Internet **6**. The printer **10**, the terminal device **100**, the management server **200**, the first SP server **300**, and the second SP server **400** are configured to communicate with each other via the Internet **6**.

(Configuration of Printer **10**)
[0014] The printer **10** is a peripheral device configured to execute a print function (i.e., peripheral device such as a PC). The printer **10** has a model name "MN1" and a device name "DV1". The model name is a name indicating a model of the printer. The device name is a name given by an administrator of the printer. The printer **10** comprises an operation unit **12**, a display unit **14**, a print executing unit **16**, a communication interface **20**, and a controller **30**. Hereafter, the interface will be referred to as "I/F".
[0015] The operation unit **12** is an I/F that enables a user to input various information to the printer **10**. The operation unit **12** comprises for example a touch panel for displaying software key(s) (operation object(s)), hardware key(s), or a combination thereof. The hardware key(s) include for example button(s) or switch(es). The display unit **14** is a display or a panel for displaying various information. The panel may be a touch panel or may not be a touch panel. Further, the panel is for example a liquid crystal panel, an organic EL panel.
[0016] The print executing unit **16** includes a print engine of an inkjet scheme, an electrophotographic scheme, or a thermal scheme. The print engine of inkjet scheme comprises a print head configured to spray ink droplets. The print engine of electrophotographic scheme comprises, for example, a photoreceptor and an exposure device configured to emit light and expose the photoreceptor with the light. The print engine of thermal scheme comprises a print head configured to generate heat with a heater.
[0017] The communication I/F **20** is connected to the LAN **4**. The communication I/F **20** may be a wired I/F or may be a wireless I/F.
[0018] The controller **30** comprises a CPU **32** and a memory **34**. The memory **34** comprises a primary storage and an auxiliary storage. Although this is an example, the primary storage includes a RAM and cache memory. Although this is an example, the auxiliary storage may be a ROM, a flash memory, a solid state drive (SSD), a hard disk drive (HDD), or a combination thereof. A program **40** is stored in the auxiliary storage of the memory **34**. The CPU **32** realizes various types of processes in accordance with a program loaded from the auxiliary storage to the primary storage.
(Configuration of Terminal Device **100**)
[0019] The terminal device **100** is a terminal device such as a mobile phone (e.g., smartphone), a PDA, a tablet PC, etc. The terminal device **100** comprises an operation unit **112**, a display unit **114**, a communication I/F **120**, and a controller **130**.
[0020] The operation unit **112** is a user interface that enables a user to input various information to the terminal device **100**. The operation unit **112** comprises for example a touch panel for displaying software key(s) (operation object(s)), hardware key(s), or a combination thereof. The hardware key(s) include for example button(s) and/or switch(es). The display unit **114** is a display or a panel for displaying various information. The panel may be a touch panel or may not be a touch panel. Further, the panel is for example a liquid crystal panel, an organic EL panel. The communication I/F **120** has a configuration the same as that of the communication I/F **20** of the printer **10**.
[0021] The controller **130** comprises a CPU **132** and a memory **134**. The memory **134** comprises a primary storage and an auxiliary storage. An OS program **140** and an application program **142** are stored in the auxiliary storage of the memory **134**. OS is abbreviation for an operating system. Hereafter, the OS program **140** and the application program **142** will be respectively referred to as "OS **140**" and "app **142**". The OS **140** controls basic operations of the terminal device **100**. The app **142** is a program for assisting initial setting of a printer. The initial setting of the printer **10** includes setting related to communication of the printer and setting related to the print function of the printer. Hereafter, the setting related to the communication of the printer and the setting related to the print function of the printer will be referred to as "communication setting" and "base setting", respectively. A user table **144** is further stored in the auxiliary storage of the memory **134**.
(Configuration of Management Server **200**)
[0022] The management server **200** is disposed on the Internet **6** by a vendor of the printer **10**

(hereafter referred to as “vendor” simply). In a modification, the management server **200** may be disposed on the Internet **6** by an entity different from the vendor. In another modification, the vendor may not prepare a hardware of the management server **200** by themselves, but may utilize an environment provided by an exterior cloud computing service. In this case, the vendor may realize the management server **200** by preparing a program (i.e., software) of the management server **200** and introducing the program into the above-mentioned environment.

[0023] The management server **200** is a server for managing guidance information corresponding to services provided by the first SP server **300** and the second SP server **400**. The guidance information is information for guiding content(s) of the service(s). The guidance information includes, for example, a message indicating the content(s) of the service(s) and a QR Code for accessing a server which provides such service. “QR Code” is a registered trademark of DENSO WAVE INCORPORATED. A service table **244** is stored in the memory **234** of the management server **200**.

(Configuration of First SP Server **300**)

[0024] The first SP server **300** is disposed on the Internet **6** by a vendor. In a modification, the first SP server **300** may be established on the Internet **6** by an entity different from the vendor. In another modification, the vendor may not prepare a hardware of the first SP server **300** by themselves, but may utilize an environment provided by an exterior cloud computing service. In this case, the vendor may realize the first SP server **300** by preparing a program (i.e., software) of the first SP server **300** and introducing the same into the above-mentioned environment.

[0025] The first SP server **300** provides a remote print service related to the printer. The remote print service is a service which enables sending a print instruction to a printer via the first SP server **300** from outside when the user is away from home. The user can use the remote print service via the terminal device **100**.

(Configuration of Second SP Server **400**)

[0026] The second SP server **400** is disposed on the Internet **6** by a vendor. In a modification, the second SP server **400** may be disposed on the Internet **6** by an entity different from the vendor. In another modification, the vendor may not prepare hardware of the second SP server **400** by themselves but may utilize an environment provided by an exterior cloud computing service. In this case, the vendor may realize the second SP server **400** by preparing a program (i.e., software) of the second SP server **400** and introducing the same into the above-mentioned environment.

[0027] The second SP server **400** provides a subscription service related to the printer. The subscription service is a service for which fee is charged. The subscription service charges a fixed fee if the number of sheets printed within a predetermined period (e.g., one month) is less than or equal to an upper limit number of printed sheets (e.g., 1000 sheets), and charges a price obtained by totaling the fixed fee and a fee according to the printed number of sheets exceeding the upper limit number of printed sheets if the number of printed sheets within the predetermined period exceeds the upper limit number of printed sheets. The subscription service also includes an automatic ordering service of automatically ordering a new cartridge in a case where a remaining amount of ink in a cartridge mounted in the printer becomes a predetermined remaining amount or less.

(Configuration of Respective Tables; FIG. **2**)

[0028] With reference to FIG. **2**, contents of the user table **144** of the terminal device **100** and the service table **244** of the management server **200** will be described.

[0029] The user table **144** of the terminal device **100** is a table for managing information related to the user. The user table **144** stores a device name, a model name, first subscription information, second subscription information, and the guidance information in association with each other. The first subscription information indicates either “Subscribed” indicating that the user has already subscribed to the remote print service or “Not Subscribed” indicating that the user has not subscribed to the remote print service. The second subscription information indicates either “Subscribed” indicating that the user has already subscribed to the subscription service or “Not

Subscribed" indicating that the user has not subscribed to the subscription service. The guidance information in the user table **144** is received from the management server **200**.

[0030] The service table **244** of the management server **200** is a table for managing the guidance information. The service table **244** stores a model name, country information, and the guidance information in association with each other. In the present embodiment, when a printer having the model name "MN1" is used in Japan, the remote print service and the subscription service can be provided to the user. When the same printer is used in U.S.A., only the remote print service can be provided to the user. When the same printer is used in China, the remote print service and the subscription service cannot be provided to the user. As such, even when the model names of the printers are the same, if the countries in which the printers are used are different, the service(s) that can be provided to the user may differ. For this reason, in the service table **244**, the guidance information is stored in association with the model name and the country information. In a modification, the service table **244** may store information indicating a wider range than the country information, and/or information indicating a smaller range (i.e., name of a city) than the country information, instead of the country information.

(Preparation Process; FIG. **3**)

[0031] With reference to FIG. **3**, a preparation process will be described. The preparation process is an initial process executed after the printer **10** is purchased. In the preparation process, the communication setting and the base setting related to the printer **10** are performed. Hereafter, all communications executed between the printer **10** and the terminal device **100**, and another device (e.g., management server **200**) are executed via the communication I/F **20**, **120**. Accordingly, hereafter, a recitation "via the communication I/F **20** (or **120**)" will be omitted. Also, for facilitating understanding, in FIG. **3**, processes executed by a CPU (e.g., CPU **32**) of each device (e.g., the printer **10**) will be described without describing each CPU as a subject of action, but with each device (e.g., printer **10**) as a subject of action.

[0032] In T**10**, a user of the terminal device **100** performs an app activating operation for activating the app **142** on the terminal device **100**. Due to this, in T**12**, the app **142** displays a home screen on the display unit **114**. The home screen includes for example a communication setting button for causing the terminal device to perform communication setting of the printer **10**. In T**14**, the user performs an operation of selecting the communication setting button. Due to this, in T**16** a network connection process is executed between the terminal device **100** and the printer **10**. Although this is an example, the network connection process is a process of establishing a wireless connection between the printer **10** and an access point to which the terminal device **100** is connected. When the network connection process is completed, the printer **10** is connected to the LAN **4** and the Internet **6**. The terminal device **100** determines that the communication setting has been completed in response to receiving a signal indicating that the communication setting has been completed from the printer **10**.

[0033] In T**20**, the terminal device **100** sends a capability information request to the printer **10**. The capability information request is a signal for requesting the printer **10** to send a device name and a model name. In T**22**, the terminal device **100** receives capability information including the device name "DV1" and the model name "MN1" from the printer **10**.

[0034] In T**30**, the terminal device **100** sends a guidance information request including the model name "MN1" and the country information "JP" to the printer **10**. The guidance information request is a signal for requesting the management server **200** to send the guidance information.

[0035] When in T**30** the management server **200** receives the guidance information request from the terminal device **100**, the management server **200** specifies the model name "MN1" and the country information "JP" in that information, and specifies, from the service table **244**, first guidance information GI**1** and second guidance information GI**2** that are associated with the model name "MN1" and the country information "JP". In T**32**, the management server **200** sends the first guidance information GI**1** and the second guidance information GI**2** to the terminal device **100**.

[0036] When in T**32** the terminal device **100** receives the first guidance information GI**1** and the second guidance information GI**2** from the management server **200**, in T**34** the terminal device **100** updates the user table **144**. Specifically, the terminal device **100** stores the device name "DV1", the model name "MN1", the first subscription information "Not Subscribed", the second subscription information "Not Subscribed", the first guidance information GI**1**, and the second guidance information GI**2** in association with each other in the user table **144**. As mentioned above, the terminal device **100** receives the guidance information from the management server **200** in response to sending the model name "MN1" received from the printer **10** to the management server **200**. Due to this, the user does not have to for example input the model name "MN1" of the printer **10**. Accordingly, user convenience can be improved.
[0037] In T**40**, the terminal device **100** displays a base setting screen. The base setting screen is a screen related to the base setting. Although this is an example, the base setting screen includes images corresponding to an operation of attaching a cartridge to the print executing unit **16** of the printer **10** and an operation of setting a print medium in a housing part (not illustrated) of the printer **10**.
[0038] In T**42**, the user performs the base setting in accordance with the base setting screen. When the base setting is completed, in T**44** the user operates a "Complete" button displayed on the display unit **14** of the printer **10**. Due to this, in T**46**, the printer **10** sends a base setting completion signal indicating that the base setting has been completed to the terminal device **100**.
[0039] In T**46**, the terminal device **100** receives the base setting completion signal from the printer **10**. Due to this, the terminal device **100** detects that the base setting has been completed. Subsequently, in T**50**, the terminal device **100** displays a firmware update screen. The firmware update screen includes a message indicating that a process of updating a firmware installed in the printer **10** to a latest version of firmware is currently ongoing. The firmware is a program for realizing specific operations of the printer **10** (e.g., operation of the print executing unit). The firmware is stored in the auxiliary storage of the memory **34** of the printer **10**. In T**52**, the terminal device **100** sends an update instruction for instructing the printer **10** to update the firmware to the printer **10**.
[0040] When in T**52** the printer **10** receives the update instruction from the terminal device **100**, in T**54** the printer **10** executes an update process of updating the firmware. Although this is an example, the update process includes for example a process of sending a firmware request which requests sending of the latest version of firmware to a firmware management server (not illustrated), a process of receiving the latest version of firmware from the firmware management server, and a process of installing the latest version of firmware on the printer **10**. When the printer **10** has completed installing the latest version of firmware, in T**56** the printer **10** sends an update completion signal indicating that installation of the latest version of firmware has been completed to the terminal device **100**.
[0041] When in T**56** the terminal device **100** has received the update completion signal from the printer **10**, the terminal device **100** displays an update completion screen, instead of the firmware update screen. The update completion screen includes a message indicating that the update of the firmware of the printer **10** has been completed. Due to this, the preparation process is completed. That is, the communication setting and the base setting for the printer **10** are completed.
(First Guidance Process; FIG. **4**)
[0042] With reference to FIG. **4**, a first guidance process executed by the app **142** of the terminal device **100** will be described. When the preparation process of FIG. **3** is completed, the app **142** executes the processes of FIG. **4**. Here, the app **142** executes respective processes by accessing each hardware such as the display unit **114**, the memory **134**, and the communication I/F **120** via the OS **140**. Hereafter, recitation of the execution of the app **142** executing each process via the OS **140** may be omitted from the description.
[0043] In S**10**, the app **142** determines whether the first guidance information GI**1** has been

received or not in the preparation process (see FIG. **3**). When the first guidance information GI**1** has been received (YES to S**10**), the app **142** proceeds to S**12**. Contrary to this, when the first guidance information GI**1** has not been received (NO to S**10**), the app **142** proceeds to S**20**.

[0044] In S**12**, the app **142** displays a first service screen SC**2** on the display unit **114** by using the received first guidance information GI**1**. The first service screen SC**2** includes a remote print message **500** included in the first guidance information GI**1**, a Start Registration button **502**, and a Later (Skip) button **504**. The remote print message **500** indicates a content of the remote print service. Although this is an example, the remote print message **500** is "If you subscribe to remote print service, you can print using printer even when you are away from home."

[0045] In S**14**, the app **142** determines whether the app **142** has received a first subscription operation or not. Specifically, the app **142** determines whether the app **142** has received an operation of selecting the Start Registration button **502** on the first service screen SC**2** or not. In a case where the app **142** receives the operation of selecting the "Start Registration" button **502** (YES to S**14**), the app **142** proceeds to S**16**. Contrary to this, in a case where the app **142** does not receive the operation of selecting the Start Registration button **502** (NO to S**14**), the app **142** proceeds to S**20**. Here, the case where the operation of selecting the Start Registration button **502** is not received is when an operation of selecting the Later (Skip) button **504** on the first service screen SC**2** has been received.

[0046] In S**16**, the app **142** executes a first subscription process. The first subscription process is for the user to subscribe to the remote print service. The first subscription process is executed between the printer **10**, the terminal device **100**, and the first SP server **300**. The first subscription process includes, for example a first establishing process, a first device registration process, and a first table update process. The first establishing process is a process of establishing a fulltime connection between the printer **10** and the first SP server **300**. The fulltime connection is for example an Extensible Messaging and Presence Protocol (XMPP) connection. The first device registration process is a process of registering the device name "DV1" of the printer **10** in the first SP server **300**. In response to the device name "DV1" being sent from the printer **10** to the first SP server **300**, the device name "DV1" is registered in the first SP server **300**. The first table update process is a process of updating the first subscription information stored in association with the device name "DV1" in the user table **144** from "OFF" to "ON". When the first subscription process is completed, the app **142** proceeds to S**20**.

[0047] In S**20**, the app **142** determines whether the second guidance information GI**2** has been received or not in the preparation process (see FIG. **3**). When the second guidance information GI**2** has been received (YES to S**20**), the app **142** proceeds to S**22**. Contrary to this, when the second guidance information GI**2** has not been received (NO to S**20**), the app **142** ends the processes of FIG. **4**.

[0048] In S**22**, the app **142** displays a second service screen SC**4** on the display unit **114** by using the received second guidance information GI**2**. The second service screen SC**4** includes a subscription message **510** included in the second guidance information GI**2**, a Start Registration button **512**, and a Later (Skip) button **514**. The subscription message **510** indicates a content of the subscription service. Although this is an example, the subscription message **510** is "If you subscribe to subscription service, you can enjoy flat-rate printing."

[0049] In S**24**, the app **142** determines whether the app **142** has received a second subscription operation or not. Specifically, the app **142** determines whether the app **142** has received an operation of selecting the Start Registration button **512** on the second service screen SC**4** or not. In a case where the app **142** receives the operation of selecting the Start Registration button **512** (YES to S**24**), the app **142** proceeds to S**26**. Contrary to this, in a case where the app **142** does not receive the operation of selecting the Start Registration button **512** (NO to S**24**), the app **142** ends the processes of FIG. **4**. Here, the case where the operation of selecting the Start Registration button **512** is not received is when an operation of selecting the Later (Skip) button **514** on the second

service screen SC**4** has been received.
[0050] In S**26**, the app **142** executes a second subscription process. The second subscription process is a process for the user to subscribe to the subscription service. The second subscription process is executed between the printer **10**, the terminal device **100**, and the second SP server **400**. The second subscription process includes, for example, a second establishing process, a second device registration process, a payment information registration process, and a second table update process. The second establishing process is a process of establishing a fulltime connection between the printer **10** and the second SP server **400**. The second device registration process is a process of registering the device name "DV1" of the printer **10** in the second SP server **400**. In response to the device name "DV1" being sent from the printer **10** to the second SP server **400**, the device name "DV1" is registered in the second SP server **400**. The payment information registration process is a process of registering information for paying a print fee. The second table update process is a process of updating the second subscription information stored in association with the device name "DV1" in the user table **144** from "OFF" to "ON". When S**26** ends, the app **142** ends the processes of FIG. **4**.
(Second Guidance Process; FIG. **5**)
[0051] With reference to FIG. **5**, a second guidance process executed by the app **142** of the terminal device **100** will be described. In a case where the first guidance process (see FIG. **4**) is completed, the app **142** executes processes of FIG. **5**.
[0052] In S**40**, the app **142** determines whether the user has already subscribed to the subscription service or not. The app **142** specifies the second subscription information stored in association with the device name "DV1" of the printer **10** from the user table **144**. In a case where the second subscription information is "ON" (YES to S**40**), the app **142** proceeds to S**70**. Contrary to this, in a case where the second subscription information is not "ON" (NO to S**40**), the app **142** proceeds to S**42**.
[0053] In S**42**, the app **142** displays a selection screen SC**6** on the display unit **114**. The selection screen SC**6** includes a confirmation message **520**, a YES button **522**, and a NO button **524**. The confirmation message **520** is a message for confirming whether to allow the guidance information to be printed in a test print. The test print is a process of confirming whether printing is properly executed. As such, the user can select whether to cause the printer **10** to print the guidance information in the test print or not. Accordingly, user convenience can be improved.
[0054] In S**44**, the app **142** determines whether the app **142** has received an allowing operation of selecting the YES button **522** on the selection screen SC**6** or not. In a case where the app **142** receives the allowing operation (YES to S**44**), the app **142** proceeds to S**46**. Contrary to this, in a case where the app **142** does not receive the allowing operation (NO to S**44**), the app **142** proceeds to S**60**.
[0055] In S**46**, the app **142** determines whether the user of the printer **10** has already subscribed to the remote print service or not. The app **142** specifies the first subscription information stored in association with the device name "DV1" of the printer **10** from the user table **144**. In a case where the first subscription information is "ON" (YES to S**46**), the app **142** proceeds to S**50**. Contrary to this, in a case where the first subscription information is not "ON" (NO to S**46**), the app **142** proceeds to S**60**.
[0056] In S**50**, the app **142** generates first print data by using the second guidance information GI**2**. The first print data includes a character string **530** for the test print, a subscription message **532** included in the second guidance information GI**2**, and a subscription QR Code **534** included in the second guidance information GI**2**. The character string **530** is information for the test print, and is "abcdef". The character string **530** is pre-stored in the memory **134**. Next, the app **142** sends a first print instruction including the first print data to the printer **10**. When S**50** ends, the app **142** ends the processes of FIG. **5**.
[0057] When the printer **10** receives the first print instruction from the terminal device **100**, the

printer **10** executes printing using the first print data included in the first print instruction. That is, the printer **10** executes the test print using the first print data. Due to this, a print image including the character string **530** corresponding to the character string “abcdef”, the subscription message **532**, and the subscription QR Code **534**. The subscription QR Code **534** is information for accessing the second SP server **400** which provides the subscription service. According to such configuration, because the second guidance information GI**2** is printed on a print medium, a possibility of the user confirming the content of the second guidance information GI**2** can be increased.

[0058] In S**60**, the app **142** generates second print data by using the first guidance information GI**1** and the second guidance information GI**2**. The second print data includes the character string **530**, the subscription message **532**, the subscription QR Code **534**, a remote print message **536** included in the first guidance information GI**1**, and a remote print QR Code **538** included in the first guidance information GI**1**. Next, the app **142** sends a second print instruction including the second print data to the printer **10**. When S**60** ends, the app **142** ends the processes of FIG. **5**.

[0059] When the printer **10** receives the second print instruction from the terminal device **100**, the printer **10** executes printing using the second print data included in the second print instruction. That is, the printer **10** executes the test print using the second print data. Due to this, a print image including the character string **530**, the subscription message **532**, the subscription QR Code **534**, the remote print message **536**, and the remote print QR Code **538** is printed. The remote print QR Code **538** is information for accessing the first SP server **300** which provides the remote print service.

[0060] As mentioned above, the first print data in the case where the user has already subscribed to the remote print service does not include information corresponding to the first guidance information GI**1**. In a case where the user has already subscribed to the remote print service, information related to the remote print service is not beneficial for the user. Accordingly, printing of unnecessary information can be suppressed, as a result of which user convenience can be improved.

[0061] Further, in the case where YES to S**40** or NO to S**44** is determined, in S**70** the app **142** generates third print data including only the character string **530**. Next, the app **142** sends a third print instruction including the third print data to the printer **10**. When S**70** ends, the app **142** ends the processes of FIG. **5**.

[0062] When the printer **10** receives the third print instruction from the terminal device **100**, the printer **10** executes printing using the third print data included in the third print instruction. That is, the printer **10** executes the test print using the third print data. In this case, a print image which does not include the guidance information is printed. In the case where the user has already subscribed to the subscription service, information related to the subscription service is not beneficial for the user. Accordingly, printing of unnecessary information can be suppressed, as a result of which user convenience can be improved.

Effects of Present Embodiment

[0063] As mentioned above, in the case where the terminal device **100** detects that the communication setting of the printer **10** is completed, the terminal device **100** sends the first print instruction to the printer **10** (S**50** in FIG. **5**). Due to this, the user can acknowledge the second guidance information GI**2**. Accordingly, user convenience can be improved.

(Correspondence Relationships)

[0064] The app **142** is an example for “computer-readable instructions for a terminal device”. The printer **10** is an example for “communication device”. The communication setting of the printer **10** is an example for “predetermined setting of the communication device”. The subscription service is an example for “first service”. The second guidance information GI**2** is an example for “first service information”. The device name “DV1” is an example for “identification information”. The guidance information request in T**30** of FIG. **3** is an example for “service information request”. The

first print instruction of S**50** in FIG. **5** is an example for “first output instruction”. The remote print service is an example of “second service”. The first guidance information GI**1** is an example for “second service information”.

[0065] T**16** of FIG. **3** is an example of a process executed by “detect that a predetermined setting of a communication device has been completed”. S**50** of FIG. **5** is an example for a process executed by “output first service information”.

Second Embodiment

[0066] A communication system **2** of the second embodiment will be described. The app **142** of the terminal device **100** of the second embodiment executes a second guidance process of FIG. **6** instead of the second guidance process of FIG. **5**.

(Second Guidance Process; FIG. **6**)

[0067] With reference to FIG. **6**, a second guidance process executed by the app **142** of the terminal device **100** will be described. In the case where the first guidance process (see FIG. **4**) is completed, the app **142** executes processes of FIG. **6**.

[0068] S**90** is the same as S**46** of FIG. **5**. In a case where YES is determined to S**90**, the app **142** proceeds to S**120**, whereas in a case where NO is determined to S**90**, the app **142** proceeds to S**92**.

[0069] S**92** is the same as S**40** of FIG. **5**. In a case where YES is determined to S**92**, the app **142** proceeds to S**100**, whereas in a case where NO is determined to S**92**, the app **142** proceeds to S**110**.

[0070] In S**110**, the app **142** generates fourth print data by using the first guidance information GI**1**. The fourth print data includes the character string **530**, the remote print message **536**, and the remote print QR Code **538**. Next, the app **142** sends a fourth print instruction including the fourth print data to the printer **10**. When S**100** ends, the app **142** ends the processes of FIG. **6**.

[0071] When the printer **10** receives the fourth print instruction from the terminal device **100**, the printer **10** executes printing by using the fourth print data included in the fourth print instruction. That is, the printer **10** executes a test print using the fourth print data. Due to this, a print image including the character string **530**, the remote print message **536**, and the remote print QR Code **538** is printed. In a case where the user has already subscribed to the subscription service, information related to the subscription service is not beneficial for the user. Accordingly, printing of unnecessary information can be suppressed, as a result of which user convenience can be improved.

[0072] S**110** is the same as S**60** of FIG. **5**. S**120** is the same as S**92**. In a case where the app **142** determines YES to S**120**, the app **142** proceeds to S**130**, whereas in a case where the app **142** determines NO to S**120**, the app **142** proceeds to S**140**. S**130**, S**140** are the same as S**50**, S**70** of FIG. **5**, respectively.

[0073] (First Modification) The “communication device” may not be limited to a printer, but may be a multi-function machine which have a scan function in addition to the print function or a copier, for example.

[0074] (Second Modification) The base setting of the printer **10** may be an example for “predetermined setting”. In another modification, the communication setting and the base setting of the printer **10** may be an example for the “predetermined setting”.

[0075] (Third Modification) In the above embodiments, after the communication setting has been executed on the printer **10**, the base setting is executed on the printer **10**. In a modification, after the base setting has been executed on the printer **10**, the communication setting may be executed on the printer **10**. In the present modification, the base setting is an example for “predetermined setting”. In another modification, the user may select the order of the communication setting on the printer **10** and the base setting on the printer **10**. In the present modification, one of the communication setting and the base setting that is executed earlier by the user is an example for the “predetermined setting”.

[0076] (Fourth Modification) The first guidance information GI**1** and the second guidance information GI**2** may be prestored in the memory **134** of the terminal device **100**. In the present modification, T**30**, T**32** of FIG. **3** may be omitted. In the present modification, “send a service

information request", "receive first service information" may be omitted.
[0077] (Fifth Modification) The second guidance processes of FIGS. **5** and **6** may be omitted. In the present modification, S**22** of FIG. **4** is an example of a process executed by "output first service information". In another modification, in S**50** of FIG. **5** for example, the terminal device **100** may notify the content of the second guidance information GI**2**, for example, by using a loudspeaker. In the present modification, the process executed by the loudspeaker is an example for a process executed by "output first service information".
[0078] (Sixth Modification) In S**50**, S**60** of FIG. **5**, S**100**, S**110**, S**130** of FIG. **6**, the terminal device **100** may send an instruction for displaying the content of the guidance information on the display unit **14** of the printer **10** to the printer **10**.
[0079] (Seventh Modification) FIG. **4** may be omitted. In the present modification, in the case where the preparation process of FIG. **3** is completed, the app **142** executes the second guidance process of FIG. **5** or FIG. **6**. In the present modification, "display the first service information" may be omitted.
[0080] (Eighth Modification) In the first embodiment, S**40** of FIG. **5** may be omitted. In the second embodiment, S**92**, S**120** of FIG. **6** may be omitted. In these present modifications, the app **142** sends a print instruction corresponding to the second guidance information GI**2** to the printer **10** irrespective of whether or not the user has already subscribed to the subscription service.
[0081] (Ninth Modification) In the first embodiment, S**42**, S**44** of FIG. **5** may be omitted. In the present modification, "display a selection screen" may be omitted.
[0082] (Tenth Modification) In the second embodiment, the app **142** may execute processes the same as S**42**, S**44** of FIG. **5** before S**90**.
[0083] (Eleventh Modification) In the first embodiment, S**46** of FIG. **5** may be omitted. S**50** or S**60** of FIG. **5** may be omitted. In another modification, in the second embodiment, the app **142** may send a print instruction of the same content to the printer **10** in S**110** and S**130** of FIG. **6**. In these modifications, in the case where the user has not subscribed to the subscription service, the app **142** does not switch the content of the print instruction to be sent to the printer **10** depending on whether the user has already subscribed to the remote print service or not.
[0084] (Twelfth Modification) In the second embodiment, in S**100** and S**140** of FIG. **6**, the app **142** may send a print instruction of the same content to the printer **10**. In the present modification, in the case where the user has already subscribed to the subscription service, the app **142** does not switch the content of the print instruction to be sent to the printer **10** depending on whether the user has already subscribed to the remote print service or not.
[0085] (Thirteenth Modification) The remote print service and the subscription service are respectively an example for "first service" and "second service". A service of shipping a consumable article for a printer may be an example for "first service".
[0086] (Fourteenth Modification) The first print data, the second print data, or the fourth print data corresponding to the guidance information may not include the character string **530**.
[0087] (Fifteenth Modification) Although in each of the above embodiments, the processes of FIGS. **3** to **6** are realized by software (e.g., the program **40**, **140**, **142**), at least one of these processes may be realized by hardware such as logic circuitry.

Claims

1. A non-transitory computer-readable recording medium storing computer-readable instructions for a terminal device comprising a processor, wherein the computer-readable instructions, when executed by the processor, cause the terminal device to: detect that a predetermined setting of a communication device has been completed; and in a case where completion of the predetermined setting is detected, output first service information corresponding to a first service related to the communication device.

2. The non-transitory computer-readable recording medium according to claim 1, wherein the computer-readable instructions, when executed by the processor, further cause the terminal device to: receive identification information for identifying the communication device from the communication device; in a case where the identification information is received from the communication device, send a service information request including the identification information to a server; and in response to the service information request being sent to the server, receive the first service information from the server.

3. The non-transitory computer-readable recording medium according to claim 1, wherein in the case where the completion of the predetermined setting is detected, a first output instruction for causing the communication device to output the first service information is sent to the communication device.

4. The non-transitory computer-readable recording medium according to claim 3, wherein the communication device is configured to execute a print function, and the first output instruction is for causing the communication device to print the first service information.

5. The non-transitory computer-readable recording medium according to claim 4, wherein the computer-readable instructions, when executed by the processor, further cause the terminal device to: in the case where the completion of the predetermined setting is detected, display the first service information on a display of the terminal device, wherein after the first service information has been displayed on the display, the first service information is outputted.

6. The non-transitory computer-readable recording medium according to claim 1, wherein in a case where the completion of the predetermined setting is detected and a user has not subscribed to the first service, the first service information is outputted, and in a case where the completion of the predetermined setting is detected and the user has subscribed to the first service, the first service information is not outputted.

7. The non-transitory computer-readable recording medium according to claim 1, wherein the computer-readable instructions, when executed by the processor, further cause the terminal device to: in the case where the completion of the predetermined setting is detected, display a selection screen for selecting whether to output the first service information on a display of the terminal device, wherein in a case where it is selected on the selection screen that the first service information is to be outputted, the first service information is outputted, and in a case where it is selected on the selection screen that the first service information is not to be outputted, the first service information is not outputted.

8. The non-transitory computer-readable recording medium according to claim 1, wherein in a case where the completion of the predetermined setting is detected and a user has not subscribed to the first service and the user has subscribed to a second service, the first service information is outputted, the second service being different from the first service and related to the communication device, and in a case where the completion of the predetermined setting is detected and the user has not subscribed to the first service and the user has not subscribed to the second service, the first service information and second service information are outputted, the second service information being different from the first service information and corresponding to the second service.

9. The non-transitory computer-readable recording medium according to claim 8, wherein in a case where the completion of the predetermined setting is detected and the user has subscribed to the first service but the user has not subscribed to the second service, the second service information is outputted.

10. The non-transitory computer-readable recording medium according to claim 1, wherein the communication device is configured to execute a print function, and the first service is related to printing.

11. A terminal device comprising: a controller configured to: detect that a predetermined setting of a communication device has been completed; and in a case where completion of the predetermined

setting is detected, output first service information corresponding to a first service related to the communication device.

12. A method executed by a terminal device, the method comprising: detecting that a predetermined setting of a communication device has been completed; and in a case where completion of the predetermined setting is detected, outputting first service information corresponding to a first service related to the communication device.