

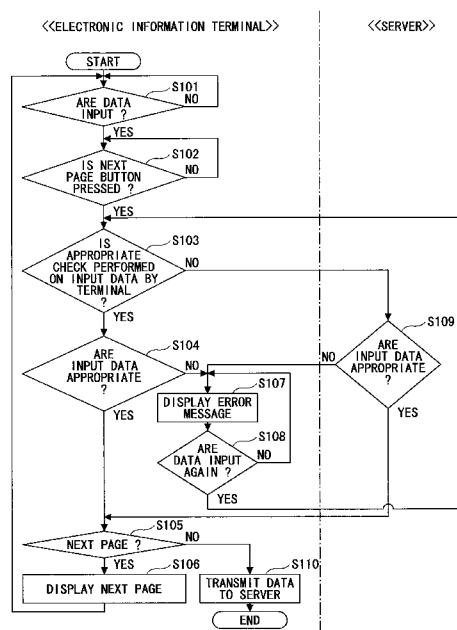


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[Continued on next page]

(54) **Title:** ELECTRONIC INFORMATION TERMINAL AND ELECTRONIC INFORMATION SYSTEM

FIG.4



(57) **Abstract:** An electronic information terminal in communication with a server includes either an appropriateness determination unit or a transmission and receiving unit, and a next page instruction unit. Further, when the next page instruction unit instructs to display a next page, the appropriateness determination unit determines whether input data to a standard menu of the terminal are appropriate or the transmission and receiving unit transmits the input data to the server and receive an appropriateness determination result of the input data from the server.



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DESCRIPTION

TITLE OF THE INVENTION

ELECTRONIC INFORMATION TERMINAL AND
ELECTRONIC INFORMATION SYSTEM

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TECHNICAL FIELD

The present invention relates to an
electronic information terminal and an electronic
information system.

10

BACKGROUND ART

Recently, paperless operations have become
more popular in a document exchange field of, for
example, filing various applications to public
15 institutions, general companies and the like. Namely,
conventional communications using paper medium is
being replaced by using electronic information. To
that end, various electronic information
communication methods such as methods using, for
20 example, various groupware, e-mail, WEB browser, and
APS (Active Server Page) have been proposed and put
into practice.

As a practical example of the paperless,
electronic information terminals having a display,
25 which may be called a display having a memory

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function or a non-volatile display, have been widely used. Further, electronic information systems for, for example, registering customer information using the electronic information terminal have been

5 developed. Generally, the electronic information terminal includes a main controller collectively controlling the entire apparatus, a storage for storing various data and programs, a display section of the display described above, an input section

10 allowing direction input on the screen using an input means such as a digitizer pen as described in, for example, Patent Documents 1 and 2, and a communication controller establishing a communication network with a server.

15 As an information input method using such a electronic information terminal, there has been known a method as described in Patent Document 3. In the method of Patent Document 3, a standard format of the application of a credit card and the like is

20 displayed page by page on the display of the display section, so that information items such as name, address, phone number and the like can be input to the pages of the application. As a result, an input operation of registering customer information to the

25 server can be conducted. When all input operations

to all the pages are completed, a data transmission button is pressed so that the entire input data are collectively transmitted to the server. Then, the server performs an appropriate check by determining
5 whether all the necessary information has been properly input and whether the input data are appropriate. When detecting inappropriate information data, the checked result is transmitted to the electronic information terminal, so that a
10 message prompting the re-entry of information for correction is displayed on the display section. Then, the information data of the entire page including the re-entered information is transmitted to the server again, so that the server performs the appropriate
15 check. When determining that the information is appropriate, the information data of all the pages are stored in the storage of the server or the electronic information terminal and the application operation is completed.

20 Patent Document 1: Japanese Laid-Open Patent Application No. 2006-139643

Patent Document 2: Japanese Laid-Open Patent Application No. 2007-279961

Patent Document 3: Japanese Laid-Open Patent
25 Application No. 2008-015864

DISCLOSURE OF THE INVENTIONPROBLEMS TO BE SOLVED BY THE INVENTION

However, in the method of Patent Document 3,
5 the input data of all the pages are transmitted to
the server via a network, and this transmission of
the input data of all the pages is repeated until
when determining that all the input data are
appropriate. Because of this feature, the workloads
10 of the server and the network may be increased.
Further, it may not be determined whether there is an
input error until the server performs the appropriate
check on the input data of all the pages transmitted
from the electronic information terminal and the
15 result of the appropriate check is transmitted to the
electronic information terminal. Further, in a case
where there are a wide variety of the input items, if
the error message is transmitted from the server, it
may be difficult for an operator to locate the input
20 data to be corrected. As a result, the operator may
have to review the information data one by one from
the beginning, which may render the operations
cumbersome and complicated.

The present invention is made in light of
25 the above problems, and may reduce the workloads of

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the server and the network and provide an electronic information terminal and an electronic information system having improved operability.

5 MEANS FOR SOLVING THE PROBLEMS

To that end, according to a first aspect of the present invention, an electronic information terminal includes a main controller collectively controlling the entire electronic information
10 terminal, a storage, a display unit, an input unit, and a communication controller establishing a communication network with a server. Further, the electronic information terminal includes either an appropriateness determination unit or a transmission
15 and receiving unit, the appropriateness determination unit determining whether input data are appropriate, the input data being input by the input unit and corresponding to an input item of a standard format, the transmission and receiving unit transmitting the
20 input data to the server and receiving an appropriateness determination result of the input data from the server; a next page instruction unit instructing to display a next page of the standard format including one or more pages; and a data
25 transmission instruction unit instructed to transmit

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the input data to the server using the communication controller. Further, when the next page instruction unit instructs to display the next page, either the appropriateness determination unit determines whether

5 all the input data are appropriate, the input data being displayed on a screen in a page of the standard format, or the transmission and receiving unit transmits the input data to the server and receives the appropriateness determination result of the input

10 data from the server, so that, when determining that all the input data displayed on the page are appropriate, the next page is displayed if the next page is available. Further, when there is no next page and the next page instruction unit instructs to

15 display the next page, either all the input data of all the pages are transmitted to the server and data input to the standard format is completed, the input data having been determined as appropriate by the appropriateness determination unit, or the input data

20 corresponding to the input items of the page displayed on the display unit when the next page instruction unit instructs to display the next page are transmitted to the server by the transmission and receiving unit and when determining that the input

25 data are appropriate based on the appropriateness

determination result received from the server, data input to the standard format is completed.

Further, according to a second aspect of the present invention, the electronic information terminal according to the first aspect includes the appropriateness determination unit determining whether input data are appropriate, the input data being input by the input unit and corresponding to the input item of the standard format, the transmission and receiving unit transmitting the input data to the server and receiving the appropriateness determination result of the input data from the server, and a determination unit determining whether the input data are to be determined whether the input data are appropriate using the appropriateness determination unit or the input data are to be transmitted to the server by the transmission and receiving unit so that the appropriateness determination result of the input data is received from the server.

Further, according to a third aspect of the present invention, an electronic information terminal including a main controller collectively controlling the entire electronic information terminal, a storage, a display unit, an input unit, and a communication

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controller establishing a communication network with a server. The electronic information terminal includes an appropriateness determination unit determining whether input data are appropriate, the
5 input data being input by the input unit and corresponding to an input item of a standard format, a transmission and receiving unit transmitting the input data to the server and receiving an appropriateness determination result of the input
10 data from the server; a next page instruction unit instructing to display a next page of the standard format including one or more pages; and a data transmission instruction unit instructing to transmit the input data to the server using the communication
15 controller. Further, when the next page instruction unit instructs to display the next page, the appropriateness determination unit determines whether all the input data are appropriate, the input data being displayed on a screen in a page of the standard
20 format, or when the appropriateness determination unit cannot determine whether the input data are appropriate, the input data are transmitted to the server by the transmission and receiving unit and the appropriateness determination result of the input
25 data is received from the server, so that, when

determining that all the input data displayed on the page are appropriate, the next page is displayed if the next page is available. Further, when there is no next page and the next page instruction unit

5 instructs to display the next page, all the input data of all the pages are transmitted to the server and data input to the standard format is completed, the input data having been determined as appropriate by the appropriateness determination unit, and when

10 the appropriateness determination unit cannot determine whether the input data are appropriate, the input data corresponding to the input item of the page displayed on the display unit when the data transmission instruction unit instructs to transmit

15 the input data, the input data are transmitted to the server by the transmission and receiving unit, and when determining that the input data are appropriate based on the appropriateness determination result received from the server, the data input to the

20 standard format is completed.

Further, according to a fourth aspect of the present invention, the electronic information terminal according to the third aspect, further includes a determination unit determining whether the

25 input data to be determined are appropriate using the

appropriateness determination unit or the input data to be transmitted to the server by the transmission and receiving unit so that the appropriateness determination result of the input data is received
5 from the server.

Further, according to a fifth aspect of the present invention, there is provided the electronic information terminal according to the second or the fourth aspect, in which the determination unit
10 determines whether the input data are appropriate, to be performed by the appropriateness determination unit when the input data corresponds to inspection data and that the input data are transmitted to the server so that the appropriateness determination
15 result of the input data is received from the server.

Further, according to a sixth aspect of the present invention, there is provided the electronic information terminal according to the fifth aspect, in which the inspection data corresponds to data
20 having a relatively small data amount or data on which an easy process is performed of determining whether data are input, determining whether a check mark is placed, whether the number of check marks exceeds a predetermined number, or whether a
25 character type of the input data is appropriate.

Further, according to a seventh aspect of the present invention, there is provided the electronic information terminal according to the fifth aspect in which the attached data corresponds
5 to data having a relatively large data amount or data on which a complicated process is performed of determining appropriateness of image data including handwriting characters, stroke data including handwriting characters, the input data outside of a
10 column, image data including an input symbol, or date data.

Further, according to an eighth aspect of the present invention, there is provided the electronic information terminal according to any one
15 of the first through the seventh aspects, in which when a determination result by the appropriateness determination unit and the appropriateness determination result received by the transmission and receiving unit indicate that the input data are not
20 appropriate, the display unit is configured to display an error message.

Further, according to a ninth aspect of the present invention, the electronic information terminal according to the first or the third aspect,
25 further includes an essentiality determination unit

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configured to determine whether the input item is necessary to be filled with data when data corresponding to an input item of the standard format are not input and either the next page instruction unit instructs to display the next page or the data transmission instruction unit instructs to transmit the input data. Further, when the essentiality determination unit determines that the input item is necessary to be filled with data, the display unit is configured to display a message requesting data input to the input item.

Further, according to a tenth aspect of the present invention, there is provided the electronic information terminal according to the first or the third aspect, in which the data transmission instruction unit transmits the input data in a case where the next page instruction unit instructs to display the next page or the data transmission instruction unit instructs to transmit the input data based on the instruction to display the next page or the instruction to transmit the input data, respectively, when an instruction to select an option not to input data is input to a predetermined column indicating whether data corresponding to the input item is input or when an instruction to select an

option to input data is input into a predetermined column and the corresponding data are input and determined that the corresponding data are appropriate by the appropriateness determination unit
5 or it is determined that the input data are appropriate based on the appropriateness determination result received from the server by the transmission and receiving unit.

Further, according to an eleventh aspect of
10 the present invention, there is provided the electronic information terminal according to any one of the first through the tenth aspects, in which when the input data correspond to personal data, the input data are stored in the storage or transmitted to the
15 server by the communication controller, and the input data are deleted from the display unit.

Further, according to a twelfth aspect of the present invention, there is provided the electronic information terminal according to any one
20 of the first through the eleventh aspects, in which the display section includes a display having a memory function.

Further, according to a thirteenth aspect of the present invention, there is provided the
25 electronic information terminal according to any one

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of the first through the twelfth aspects, in which the display unit inputs handwriting data.

Further, according to a fourteenth aspect of the present invention, an electronic information
5 system includes the electronic information terminal according to any one of the first through thirteenth aspects; and a server in communication with the electronic information terminal with a network.

In an embodiment of the present invention,
10 when the next page instruction unit instructs to display the next page, the appropriateness determination unit determining whether all the input data input to the corresponding input displayed on the display unit page by page are appropriate or the
15 transmission and receiving unit transmits the input data to the server and receives the appropriateness determination result of the input data from the server. Further, when determining that all the input data in the displayed page is appropriate, the next
20 page is displayed. Further, when it is determined that all the input data of all the pages are appropriate and the data transmission instruction unit instructs to transmit all the input data having been determined as appropriate to the server, the
25 input data having been determined as appropriate by

the appropriateness determination unit are transmitted to the server by the communication controller, and the data input to the standard format is completed. Otherwise, the input data in the page
5 displayed when data transmission instruction unit instructs to transmit the input data are transmitted to the server by the data transmission instruction unit and the appropriateness determination result indicating that the input data are appropriate are
10 received, the data input to the standard format is completed. Further, when the appropriateness determination unit determines whether the input data are appropriate (i.e., performs the appropriate check) page by page, the input data of the page
15 having the input data having been determined as appropriate are not transmitted to the server. Because of this feature, the amount of all the input data that has been determined as appropriate by the appropriateness determination unit and that has been
20 collectively transmitted to the server is less than the total data amount of the input data when the input data are transmitted to the server. The input data including the input data having been determined as appropriate and the input data to be determined
25 whether the input data are appropriate by the server

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in a case where the appropriate check is performed by the server for the transmitted data amount of the input data having been already determined as appropriate. Similarly, when the input data are

5 transmitted to the server and the server determines whether the input data in the pages are appropriate, the input data having been determined as appropriate already are not transmitted to the server. By doing this, the total data amount of data transmitted to

10 the server is less than the data amount of the input data including the input data having been determined as appropriate and the input data on which the appropriate check is performed by the data amount of the input data that has been determined as

15 appropriate and that are not transmitted to the server. As described above, the data amount of the data transmitted and received between the electronic information terminal and the server may be reduced. As a result, it may become possible to reduce the

20 workloads of the server and the network. Further, the appropriate check to determine whether the input data are appropriate is performed page by page. Therefore, for example, an error message may be displayed page by page. As a result, it may become

25 possible to check the corrected input data and the

column where the input data are to be corrected.
Therefore, it may become easier to correct erroneous
input data and improve the operability.

5 EFFECTS OF THE PRESENT INVENTION

 According to the present invention, it may
become possible to reduce the workloads of the server
and the network and improve the operability.

10 BRIEF DESCRIPTION OF THE DRAWINGS

 FIG. 1 is a perspective view illustrating a
configuration of an electronic information terminal
according to an embodiment of the present invention;

 FIG. 2 is a schematic view of a
15 configuration of an electronic information system;

 FIG. 3 is a schematic view of an input
operation of the electronic information terminal
according to the embodiment of the present invention;

 FIG. 4 is a flowchart of the input
20 operations of the electronic information terminal;

 FIG. 5 is a schematic view of another input
operation of the electronic information terminal
according to the embodiment of the present invention;

 FIG. 6 is a flowchart of the input operation
25 of the electronic information terminal of FIG. 5;

FIG. 7 is a schematic view of still another input operation of the electronic information terminal according to the embodiment of the present invention;

5 FIG. 8 is a flowchart of the input operation of the electronic information terminal of FIG. 7;

FIG. 9 is a schematic view of still another input operation of the electronic information terminal according to the embodiment of the present
10 invention;

FIG. 10 is a flowchart of the input operation of the electronic information terminal of FIG. 9;

FIG. 11 is a schematic view of still another
15 input operation of the electronic information terminal according to the embodiment of the present invention;

FIG. 12 is a flowchart of the input operation of the electronic information terminal of
20 FIG. 11; and

FIG. 13 is a schematic view of still another input operation of the electronic information terminal according to the embodiment of the present invention.

DESCRIPTION OF THE REFERENCE NUMERALS

- 10, 10-1 ~ 10-n: ELECTRONIC INFORMATION TERMINAL
11: DISPLAY
12: NEXT PAGE BUTTON
5 13: PREVIOUS PAGE BUTTON
14: DATA TRANSMISSION BUTTON
15: NEXT PAGE DISPLAY BUTTON
16: DATA TRANSMISSION DISPLAY BUTTON
30-1 ~ 30-m: SERVER

10

BEST MODE FOR CARRYING OUT THE INVENTION

In the following, an electronic information terminal according to an embodiment of the present invention is described in detail with reference to
15 the drawings.

FIG. 1 is a perspective view of the electronic information terminal in this embodiment. An electronic information terminal 10 in FIG. 1 includes a display 11, a next page button 12, a
20 previous page button 13, and a data transmission button 14 as main elements. The display 11 displays a standard format, various buttons such as a next page display button and a previous page display button described below, an error message, a guide
25 message and the like. Further, data may be input by

touching the screen of the display. Further, data may be input by hand writing using a digitizer pen and the like. The next page button 12 is used to display (go to) the next page when available. The
5 previous page button 13 is used to display (go back to) the previous page (when available). The data transmission button 14 is used to transmit input data to be stored in a server. The display 11 of the electronic information terminal 10 is made of, for
10 example, a display having a memory function or a non-volatile display. The display having the memory function and the non-volatile display memorize the data of the displayed screen so as to (continuously) display the memorized data without requiring a power
15 supply. The electronic information terminal 10 further includes a memory (not shown) for storing various programs, a CPU (not shown) for processing input data when the input data can be processed by the terminal and collectively controlling the entire
20 elements of the terminal, and an interface (not shown) for connecting with a network to establish a communication line with the server.

FIG. 2 illustrates an electronic information system including the electronic information terminal
25 10 and the server connected with the electronic

information terminal 10 via a network. As illustrated in FIG. 2, there may be plural electronic information terminals 10-1 to 10-n (n: a positive integer) that may be connected with at least one or
5 more servers 30-1 to 30-m (m: a positive integer). When the input data input to the electronic information terminals 10-1 to 10-n are attached data (e.g., handwriting signature data) described below, the input data are transmitted from the electronic
10 information terminals 10-1 to 10-n to the servers 30-1 to 30-m, so that the servers 30-1 to 30-m perform processes and appropriate checks on the received attached data (input data). In this case, depending on the amount of the attached data or degree of
15 importance, the workload of the processes and the appropriate checks may be distributed among the servers 30-1 to 30-m.

Further, in this embodiment, the data of the input data on which the appropriate check is
20 performed are classified into two types of data: the inspection data and the attached data. The amount of the inspection data is relatively small, so that the inspection data can be processed easily. On the other hand, the amount of the attached data is
25 relatively large, so that the process performed on

the attached data may be complicated. The inspection data include, for example, the data indicating whether data are input to the predetermined column, the data indicating whether a check mark is placed, the data indicating whether the number of the check marks exceeds a predetermined limit number, and the data indicating whether the input data are recognizable characters, figures, or symbols. The attached data include, for example, the image data including handwriting characters, the stroke data (e.g., writing direction and writing pressure) of handwriting characters, the data indicating the position where the check mark is placed (i.e., data indicating whether the check mark is placed in a predetermined column or in another area), the image data of the characters and symbols written outside a predetermined column, the data indicating date when data are written in columns, the data indicating the postal code to be used for searching for the address.

20 An example input operation using the electronic information terminal in this embodiment is described.

FIG. 3 schematically illustrates an input operation of the electronic information terminal in this embodiment. FIG. 4 is a flowchart of the input

operation of FIG. 3. First, as illustrated in part (a) of FIG. 3, the display 11 of the electronic information terminal 10 displays the first page of a standard format. Herein, a case is described where
5 handwriting data are input to the first page of the standard format as input data. In this case, the electronic information terminal 10 monitors (determines) whether the handwriting data are input (written) in a predetermined column using a pen input
10 means (not shown) (step S101). Then, as illustrated in part (b) of FIG. 3, when determining that the handwriting data are input (YES in step S101), the electronic information terminal 10 further determines whether the next page button 12 or a next page
15 display button 15 displayed on the display 11 to be operated is pressed (touched) (step S102). When determining that the next page button 12 or a next page display button 15 is pressed (YES in step S102), the electronic information terminal 10 further
20 determines whether the electronic information terminal 10 performs the appropriate check on the input data (step S103). In this case, when determining that the appropriate check can be performed based on a simple criterion, the electronic
25 information terminal 10 determines to perform the

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appropriate check by the electronic information terminal 10 without transmitting the input data to the server 30-1. By doing this, it may become possible to reduce the workload of the network and eliminate transmission time to and the processing time in the server 30-1. As a result, it may become possible to complete the processing stage in a short time period and reduce the degradation of the operability. Further, the input data may be processed in the electronic information terminal 10 regardless of the amount of the input data or the complexity of the process.

Then, when determining that the appropriate check is to be performed by the electronic information terminal 10 (YES in step S103), the electronic information terminal 10 performs the appropriate check to determine whether the input data are appropriate (step S104). When determining that the input data are appropriate (YES in step S104), the electronic information terminal 10 determines whether the next page is available (step S105). When determining that the next page is available (YES in step S105), the electronic information terminal 10 displays the next page (step S106), and the process goes back to step S101. The appropriate check herein

refers to the check that can be performed based on a simple criterion. For example, the check includes to determine whether the handwriting data are written in a predetermined column and determines whether the handwriting characters are recognizable. On the other hand, when determining that the input data are not appropriate (NO in step S104), an error message is displayed on the display 11 to request appropriate data input (step S107). After that, the error message is displayed until the next handwriting data are input (NO in step S108). When the next handwriting data are input (YES in step S108), the process goes back to step S103 and it is determined whether the input data input in step S108 is appropriate. In this case, after the next handwriting data are input (YES in step S108), the process may go back to step S104 to perform the appropriate check. Referring back to step S103, when determining that the electronic information terminal 10 cannot perform the appropriate check on the input data by the electronic information terminal 10, specifically when the handwriting input data are image data including handwriting characters, the electronic information terminal 10 establishes the connection with the server 30-1 via the network 20

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and transmits the input data to the server 30-1 (NO in step S103). Then, the server 30-1 performs the appropriate check, and transmits the result of the appropriate check to the electronic information terminal 10 (step S109). Upon the receipt of the result of the appropriate check, the electronic information terminal 10 performs the processes similar to the processes in steps S105 and S106 described above. When determining that there is no next page available in the standard format (NO in step S105), the input data of all the pages are collectively transmitted to the server, and the data input to the standard format is completed (step S110). It is assumed that the input data are collectively transmitted to the server when the data transmission button 14 is pressed or when determining that all the input data are appropriate until the last page.

Next, another input operation is described. This input operation includes a process determining whether the input item is necessary (essential).

FIG. 5 schematically illustrates another input operation of the electronic information terminal in this embodiment. FIG. 6 is a flowchart of the input operation of FIG. 5. First, as illustrated in part (a) of FIG. 5, the display 11 of

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the electronic information terminal 10 displays the first page of a standard format. In this example, a standard format of an application of a point card is described. In the first page of the standard format, there are columns for inputting the name and the birthday. In this example, the electronic information terminal 10 does not monitor (determine) whether handwriting data are input (written) in the predetermined column using the pen input means (not shown). Namely, as illustrated in part (b) of FIG. 5, the electronic information terminal 10 determines whether the next page button 12 or the next page display button 15 on the display 11 to be operated is pressed (touched) (step S201). When determined that the next page button 12 or the next page display button 15 is pressed (YES in step S201), the electronic information terminal 10 further determines whether there is a blank column remaining in the page (step S202). As a result, when determining that there is a blank column (YES in step S202), the electronic information terminal 10 further determines whether the input item of the blank column is necessary to be input (step S203). When determining that the input item of the blank column is necessary to be input (YES in step S203), a message is

continuously displayed until data are input into the blank column (step S204 and NO in step S205). When data are input into the blank column (YES in step S205), the electronic information terminal 10

5 performs the appropriate check on the input data in the page (step S206). In this example, the step where the electronic information terminal 10 determines whether the electronic information terminal 10 performs the appropriate check on the

10 input data by the electronic information terminal 10 is omitted. However, as described in the above example, this step may also be executed. When determining that that the input item of the blank column is not necessary (essential) to be input (NO

15 in step S203), as illustrated in part (c) of FIG. 5, though a message requesting the data input may be temporarily displayed, for example, after a predetermined time period has passed, the process goes to step S206 to determine whether the input data

20 are appropriate (input data appropriateness determination step). The appropriate check in this example is performed based on a simple criterion. For example, it is determined whether the designated character type (e.g., one-byte characters) are used

25 in the data input into the birthday column, and

whether one of the designated years is input.

Then, as a result, when determining that the input data are appropriate (YES in step S206) and further determining that there is the next page
5 available (YES in step S207), as illustrated in part (e) of FIG. 5, the second page of the standard format is displayed (step S208), and the process goes back to step S201. On the other hand, when determining that the input data are not appropriate (NO in step
10 S206), an error message requesting the input of appropriate data is displayed on the display 11 (step S209). This error message is displayed until the next handwriting data are input (NO in step S210). When the next handwriting data are input (YES in step
15 S210), the process goes back to step S206 and it is determined whether the input data input in step 210 are appropriate. Next, when there is no next page in the standard format (NO in step S207), the input data of all the pages are collectively transmitted to the
20 server and the input operation in the standard format is completed (step S211). It is assumed that the input data are collectively transmitted to the server when the data transmission button 14 is pressed or when determining that all the input data are
25 appropriate until the last page.

Next, another input operation is described. In this example, a case is described where the input item is necessary to be input and the page is not the last page.

5 FIG. 7 schematically illustrates still another input operation of the electronic information terminal in this embodiment. FIG. 8 is a flowchart of the input operation of FIG. 7. First, as illustrated in part (a) of FIG. 7, the display 11 of
10 the electronic information terminal 10 displays the first page of a standard format. In this example, a standard format of a manual of vaccination is displayed. In the first page of the standard format, a column where data indicating whether the content of
15 the manual is understood is displayed for input. In this example as well, the electronic information terminal 10 does not monitor (determine) whether the handwriting data are input (written) in the predetermined column using the pen input means (not
20 shown). Namely, as illustrated in part (b) of FIG. 7, the electronic information terminal 10 determines whether the next page button 12 or the next page display button 15 on the display 11 to be operated is pressed (touched) (step S301). When determined that
25 the next page button 12 or the next page display

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button 15 is pressed (YES in step S301), the electronic information terminal 10 further determines whether the column where the check mark is to be placed is blank in the page (step S302). As a result, 5 when determining that the column where the check mark is to be placed is blank (YES in step S302), it is determined whether the data item of the blank column is necessary to be filled with data (check mark) (step S303). When determining that the data item of 10 the blank column is necessary to be filled with data (YES in step S303), a message requesting the data input as illustrated in part (c) of FIG. 7 is displayed until the check mark is input (placed) (step S304, NO in step S305). When the check mark is 15 placed as illustrated in part (d) of FIG. 7, the electronic information terminal 10 performs the appropriate check on the input data in the page (step S306). In this example, the step where the electronic information terminal 10 determines whether 20 the electronic information terminal 10 performs the appropriate check on the input data by the electronic information terminal 10 is omitted. However, as described in the above example, this step may also be executed. When determining that that the input item 25 of the blank column is not necessary (essential) to

be input (NO in step S303), the process goes to step S306 to determine whether the input data are appropriate (input data appropriateness determination step). The appropriate check in this example is
5 performed based on a simple criterion. For example, it is determined whether handwriting data are written in a predetermined column and whether the handwriting data can be recognized as characters.

Then, as a result, when determining that the
10 input data are appropriate (YES in step S306) and further determining that there is the next page available (YES in step S307), as illustrated in part (e) of FIG. 7, the second page of the standard format is displayed (step S308), and the process goes back
15 to step S301. On the other hand, when determining that the input data are not appropriate (NO in step S306), an error message requesting the input of appropriate data is displayed on the display 11 (step S309). This error message is displayed until the
20 next handwriting data are input (NO in step S310). When the next handwriting data are input (YES in step S310), the process goes back to step S306 and it is determined whether the input data input in step S310 are appropriate. Next, when there is no next page in
25 the standard format (NO in step S307), the input data

of all the pages are collectively transmitted to the server and the input operation in the standard format is completed (step S311). It is assumed that the input data are collectively transmitted to the server
5 when the data transmission button (not shown) is pressed or when determining that all the input data are appropriate until the last page.

FIG. 9 schematically illustrates still another input operation of the electronic information terminal in this embodiment. FIG. 10 is a flowchart of the input operation of FIG. 9. As illustrated in part (a) of FIG. 9, in this example, an input operation to the signature column in the last page of a standard format is described. First, as
10 illustrated in part (a) of FIG. 9, the display 11 of the electronic information terminal 10 displays the signature column where signature is input (written) in the last page. As illustrated in part (b) of FIG. 9, the electronic information terminal 10 determines
15 whether the data transmission button 14 or a data transmission display button 16 displayed on the display 11 to be operated is pressed (touched) (step S401). When determined that the data transmission button 14 or the data transmission display button 16
20 is pressed (YES in step S401), the electronic
25

information terminal 10 further determines whether the signature column is filled with data (step S402). As a result, when determining that the signature column is blank (NO in step S402), it is determined
5 whether the blank column is necessary (essential) to be filled with a signature (step S403). When determining that the blank column is necessary to be filled with a signature (YES in step S403), a message requesting the signature input as illustrated in part
10 (c) of FIG. 9 is displayed until signature is input (written) (step S404, NO in step S405). When a signature is input as illustrated in part (d) of FIG. 9, the electronic information terminal 10 performs the appropriate check on the input signature (step
15 S406). In this example, the step where the electronic information terminal 10 determines whether the electronic information terminal 10 performs the appropriate check on the input data by the electronic information terminal 10 is omitted. However, as
20 described in the above example, this step may also be executed. When determining that that the blank column is not necessary to be filled with a signature (NO in step S403), data are transmitted to the server (step S409). The appropriate check in this example
25 is performed based on a simple criterion. For

another input operation of the electronic information terminal in this embodiment. FIG. 12 is a flowchart of the input operation of FIG. 10. As illustrated in part (a) of FIG. 11, the first page of the standard
5 format is displayed on the display 11 of the electronic information terminal 10. In this example, the standard format has a questionnaire form. As the first page of this standard format, a question Q1 is displayed. In this example as well, the electronic
10 information terminal 10 does not monitor (determine) whether the handwriting data are input (written) in the predetermined column using the pen input means (not shown). Namely, as illustrated in part (b) of FIG. 11, the electronic information terminal 10
15 monitors (determines) whether the next page button 12 or the next page display button 15 on the display 11 to be operated is pressed (touched) (step S501). When determined that the next page button 12 or the next page display button 15 is pressed (YES in step
20 S501), the electronic information terminal 10 further determines whether the comment column for the question Q1 is blank (step S502). As a result, when determining that the comment column is blank (YES in step S502), it is determined whether the check mark
25 is placed on either a check column indicating that

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the input to the comment column is performed later or a check column indicating that no data are input to the comment column (step S503). When determining that no check mark is placed (NO in step S503), as
5 illustrated in part (c) of FIG. 11, a message requesting the input of the check mark is displayed until the check mark is placed (step S504, NO in step S505). As illustrated in part (d) of FIG. 11, when determining that the check mark is placed in any one
10 of the check columns (YES in step S505), the electronic information terminal 10 performs the appropriate check on the input data of the input comments (step S506). In this example, the step where the electronic information terminal 10
15 determines whether the electronic information terminal 10 performs the appropriate check on the input data by the electronic information terminal 10 is omitted. However, as described in the above example, this step may also be executed. Then, for
20 example, in this appropriate check, it is determined whether the input comments are input (written) in a predetermined input column. The appropriate check in this example is performed based on a simple criterion. For example, it is determined whether the number of
25 characters (words) in the comments exceeds a

predetermined upper limit number.

Then, as a result, when determining that the input data are appropriate (YES in step S506) and there is the next page available (YES in step S507),
5 as illustrated in part (d) of FIG. 11, the question Q2 in the second page is displayed (step S508), and the process goes back to step S501. On the other hand, when determining that the comments (input data) are not appropriate (NO in step S506), an error
10 message requesting the input of appropriate data is displayed on the display 11 (step S509). This error message is displayed until the next handwriting comments are input (NO in step S510). When the next handwriting comments are input (YES in step S510),
15 the process goes back to step S506 and it is determined whether the input data input in step S510 are appropriate. When determining that the input data input in step S510 are appropriate (YES in step S506) and that there is no next page available (NO in
20 step S507), it is determined whether there is a page where the check mark is placed in the column indicating that comments will be input (written) later (step S511). When determining that there is a page where the check mark is placed in the column
25 indicating that comments will be input (written)

later (YES in step S511), as illustrated in part (e) of FIG. 11, the relevant page is displayed (step S512). Then, it is determined where all the inputs of the comments in the page(s) where the check marks
5 are placed in the columns indicating that comments will be input later is completed (step S513). When determining that all the inputs are completed (YES in step S513), the process goes back to step S506 and it is determined whether the input data are appropriate.
10 When determining that the input data are appropriate (YES in step S506), the data are collectively transmitted to the server (step S514) and the input operation in the standard format is completed.

FIG. 13 schematically illustrates still
15 another input operation of the electronic information terminal in this embodiment. In this input operation, the input data to respond to the questionnaire are personal data to be protected when, for example, the question is about the user's annual income. In this
20 example, first, a questionnaire form of the standard format is displayed on the display 11 of the electronic information terminal 10. Then, data corresponding to predetermined input items are input and the next page button 12 or the next page display
25 button 15 is pressed. In this case, when the input

items include the input item where personal data are to be input, so that, for example, the amount of annual income is input to respond to the question asking about the annual income, the personal data may
5 be transmitted to the server and the input data indicating the annual income in this case are stored in either the server or the electronic information terminal. Further, the input data are deleted on display. In this case, for example, a message "To
10 protect personal data, input data are automatically transmitted to the server and deleted from display" may be displayed.

As described above, according to an embodiment of the present invention, as illustrated
15 in FIG. 1, the electronic information terminal 10 in includes a main controller, a storage, a display section, an input section, and a communication controller such as an interface to establish communications with the server as main elements. The
20 display section includes the display 11 having the memory function. Further, the display section has the function to input handwriting characters using an input means such as a digitizer pen. The electronic information terminal 10 further includes the next
25 page button 12, the previous page button 13, and the

data transmission button 14. The next page button 12 and the previous page button 13 are used to display the next page and the previous page, respectively, of the standard format. By having the elements, the

5 standard format can be display page by page on the screen of the display 11, so that data corresponding to the input items of the standard format can be input via the input section. Further, when the next page button 12 is pressed, it is determined whether

10 input data corresponding to the data items are appropriate. Otherwise, the input data are transmitted to the server, so that the server determines whether the input data are appropriate. As a result, upon determining that the input data are

15 appropriate, the next page is displayed. Further, when the data transmission button 14 is pressed, all the input data having been determined as appropriate are transmitted to the server. Because of the data transmission method, the input data of all the pages

20 including the page having the input data determined as appropriate are not collectively transmitted to the server. As a result, it may become possible to reduce the workloads of the server and the network. Further, when the next page displayed and when the

25 input data are transmitted, it is already determined

(confirmed) that the input data are appropriate.
Because of this feature, it becomes no longer
necessary to review the input data again (to correct
the input data). As a result, it may become possible
5 to improve the operability of the electronic
information terminal.

Further, according to an embodiment of the
present invention, as illustrated in FIG. 9, it is
possible to input handwriting data via the display 11.
10 After the handwriting data corresponding to the input
item of the standard format are input (written), when
the next page button 12 or the data transmission
button 14 (the data transmission display button 16)
is pressed, it is determined whether the input data
15 of the handwriting data are appropriate. Only when
determining (confirming) that the input data of the
handwriting data are appropriate, the next page is
displayed or the input data are transmitted to the
server. In other words, when the next page is
20 displayed or the input data are transmitted to the
server, it is already determined (confirmed) that the
input data are appropriate. Because of this feature,
it becomes no longer necessary to review the input
data again (to correct the input data). As a result,
25 it may become possible to improve the operability of

the electronic information terminal.

Further, according to an embodiment of the present invention, the process of determining whether the input data are appropriate is mainly performed by the electronic information terminal. However, depending on the case, the process may be performed by the server. when the input data correspond to the inspection data, more specifically, for example, when the data amount of the input data is relatively small or when processes to be performed on the input data are relatively simple (easy), the electronic information terminal performs the appropriate check on the input data (i.e., it is determines whether the input data are appropriate by the electronic information terminal). On the other hand, when the input data correspond to the attached data, more specifically, for example, when the data amount of the input data is relatively large or when processes to be performed on the input data are relatively complicated, the server performs the appropriate check on the input data (i.e., it is determines whether the input data are appropriate by the server). Because of this feature, it may become possible to reduce the workloads of the server and the network.

Further, according to an embodiment of the

present invention, as illustrated in FIGS. 5, 7, 9, and 11, in a case where the next page button 12 or the data transmission button 14 is pressed, if there are the input data having been determined as

5 inappropriate, a corresponding error message is displayed on the display 11. Further, it is possible to check the data to be corrected and the input item having data to be corrected on the page. Therefore, it may become possible to correct the input data

10 easily and ensure to input correct data.

According to an embodiment of the present invention, as illustrated in FIG. 8, it is determined whether the input item is necessary to be filled with data. Then, when determining that the input item is

15 necessary to be filled with data, as illustrated in FIG. 9, a message requesting the input of the input data corresponding to the input item is displayed on the display 11. Only when the input data corresponding to the input item are input and it is

20 determined that the input data are appropriate, the next page is displayed or the input data are transmitted to the server. Therefore, it may become possible to prevent the transmission of erroneous data. As a result, it may become possible to improve

25 the operability of the electronic information

terminal.

Further, according to an embodiment of the present invention, as illustrated in FIG. 11, the standard format includes a column where it is possible to select whether input data corresponding to the input item will be input. In a case where the next page button 12 or the data transmission button 14 is pressed, when it is selected in the column that input data corresponding to the input item will not be input in a predetermined column, the next page is displayed or data are transmitted to the server. In a case where the next page button 12 or the data transmission button 14 is pressed and it is selected in the column that input data corresponding to the input item will be input, only when the input data are input into the predetermined column and it is determined that the input data are appropriate, the next page is displayed or the data are transmitted to the server. Because of this feature, it may become possible to provide a versatile electronic information terminal.

Further, according to an embodiment of the present invention, when the input data input to the input items corresponds to personal data, the input data are stored in the storage of the electronic

information terminal or transmitted to the server so that the sever manages the input data. Further, the input data corresponding to personal data are deleted from the display 11. As a result, the personal data
5 may be protected and the electronic information terminal having improved operability may be provided.

The present invention is described by referring to a specific embodiment. However, a person skilled in the art may understand that the
10 above embodiment is described for illustrative purpose only and may think of examples of various modifications, transformations, alterations, changes, and the like. For illustrative purposes, the apparatus according to an embodiment of the present
15 invention is described with reference to the functional block diagrams. However, such an apparatus may be provided by hardware, software, or a combination thereof. The present invention is not limited to the embodiment described above, and
20 various modifications, transformations, alteration, exchanges, and the like may be made without departing from the scope and spirit of the present invention.

The present application is based on and claims the benefit of priority of Japanese Patent
25 Application No. 2010-293963, filed on December 28,

2010, the entire contents of which are hereby
incorporated herein by reference.

CLAIMS

Claim 1. An electronic information terminal including a main controller collectively controlling the entire electronic information terminal, a storage, a display unit, an input unit, and a communication controller establishing a communication network with a server, the electronic information terminal comprising:

10 either an appropriateness determination unit or a transmission and receiving unit,

 the appropriateness determination unit being configured to determine whether input data are appropriate, the input data being input by the input unit and corresponding to an input item of a standard format,

15 the transmission and receiving unit being configured to transmit the input data to the server and receive an appropriateness determination result of the input data from the server;

 a next page instruction unit configured to instruct to display a next page of the standard format including one or more pages; and

 a data transmission instruction unit

25 configured to instruct to transmit the input data to

the server using the communication controller,

wherein when the next page instruction unit instructs to display the next page, either the appropriateness determination unit is configured to
5 determine whether all the input data are appropriate, the input data being displayed on a screen in a page of the standard format, or the transmission and receiving unit is configured to transmit the input data to the server and receive the appropriateness
10 determination result of the input data from the server, so that, when determining that all the input data displayed on the page are appropriate, the next page is displayed if the next page is available, and

wherein, when there is no next page and the
15 next page instruction unit instructs to display the next page, either all the input data of all the pages are transmitted to the server and data input to the standard format is completed, the input data having been determined as appropriate by the appropriateness
20 determination unit, or the input data corresponding to the input items of the page displayed on the display unit when the next page instruction unit instructs to display the next page are transmitted to the server by the transmission and receiving unit and
25 when determining that the input data are appropriate

based on the appropriateness determination result received from the server, data input to the standard format is completed.

5

Claim 2. The electronic information terminal according to claim 1,
wherein the electronic information terminal includes

10 the appropriateness determination unit configured to determine whether input data are appropriate, the input data being input by the input unit and corresponding to the input item of the standard format,

15 the transmission and receiving unit configured to transmit the input data to the server and receive the appropriateness determination result of the input data from the server, and

a determination unit configured to determine
20 whether the input data are to be determined whether the input data are appropriate using the appropriateness determination unit or the input data are to be transmitted to the server by the transmission and receiving unit so that the
25 appropriateness determination result of the input

data is received from the server.

Claim 3. An electronic information terminal
5 including a main controller collectively controlling
the entire electronic information terminal, a storage,
a display unit, an input unit, and a communication
controller establishing a communication network with
a server, the electronic information terminal
10 comprising:

an appropriateness determination unit
configured to determine whether input data are
appropriate, the input data being input by the input
unit and corresponding to an input item of a standard
15 format,

a transmission and receiving unit configured
to transmit the input data to the server and receive
an appropriateness determination result of the input
data from the server;

20 a next page instruction unit configured to
instruct to display a next page of the standard
format including one or more pages; and

a data transmission instruction unit
configured to instruct to transmit the input data to
25 the server using the communication controller,

wherein when the next page instruction unit instructs to display the next page, the appropriateness determination unit is configured to determine whether all the input data are appropriate, the input data being displayed on a screen in a page of the standard format, or when the appropriateness determination unit cannot determine whether the input data are appropriate, the input data are transmitted to the server by the transmission and receiving unit and the appropriateness determination result of the input data is received from the server, so that, when determining that all the input data displayed on the page are appropriate, the next page is displayed if the next page is available, and

wherein, when there is no next page and the next page instruction unit instructs to display the next page, all the input data of all the pages are transmitted to the server and data input to the standard format is completed, the input data having been determined as appropriate by the appropriateness determination unit, and when the appropriateness determination unit cannot determine whether the input data are appropriate, the input data corresponding to the input item of the page displayed on the display unit when the data transmission instruction unit

instructs to transmit the input data, the input data
are transmitted to the server by the transmission and
receiving unit, and when determining that the input
data are appropriate based on the appropriateness
5 determination result received from the server, the
data input to the standard format is completed.

Claim 4. The electronic information terminal
10 according to claim 3, further comprising:

a determination unit configured to determine
whether the input data are to be determined whether
the input data are appropriate using the
appropriateness determination unit or the input data
15 are to be transmitted to the server by the
transmission and receiving unit so that the
appropriateness determination result of the input
data is received from the server.

20

Claim 5. The electronic information terminal
according to claim 2 or 4,

wherein the determination unit is configured
to determine that determination whether the input
25 data are appropriate is to be performed by the

appropriateness determination unit when the input data correspond to inspection data and that the input data are transmitted to the server so that the appropriateness determination result of the input
5 data is received from the server.

Claim 6. The electronic information terminal according to claim 5,
10 wherein the inspection data correspond to data having a relatively small data amount or data on which an easy process is performed of determining whether data are input, determining whether a check mark is placed, whether the number of check marks
15 exceeds a predetermined number, or whether a character type of the input data is appropriate.

Claim 7. The electronic information terminal
20 according to claim 5,
wherein the attached data correspond to data having a relatively large data amount or data on which a complicated process is performed of determining appropriateness of image data including
25 handwriting characters, stroke data including

handwriting characters, the input data outside a column, image data including an input symbol, or date data.

5

Claim 8. The electronic information terminal according to any one of claims 1 through 4,

wherein when a determination result by the appropriateness determination unit and the appropriateness determination result received by the transmission and receiving unit indicate that the input data are not appropriate, the display unit is configured to display an error message.

15

Claim 9. The electronic information terminal according to claim 1 or 3, further comprising:

an essentiality determination unit configured to determine whether the input item is necessary to be filled with data when data corresponding to an input item of the standard format are not input and either the next page instruction unit instructs to display the next page or the data transmission instruction unit instructs to transmit the input data,

25

wherein when the essentiality determination unit determines that the input item is necessary to be filled with data, the display unit is configured to display a message requesting data input to the
5 input item.

Claim 10. The electronic information terminal according to claim 1 or 3,
10 wherein the data transmission instruction unit is configured to transmit the input data in a case where the next page instruction unit instructs to display the next page or the data transmission instruction unit instructs to transmit the input data
15 based on the instruction to display the next page or the instruction to transmit the input data, respectively, when an instruction to select an option not to input data is input to a predetermined column indicating whether data corresponding to the input
20 item is input or when an instruction to select an option to input data is input to a predetermined column and corresponding data are input and determined that the corresponding data are appropriate by the appropriateness determination unit
25 or it is determined that the input data are

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appropriate based on the appropriateness
determination result received from the server by the
transmission and receiving unit.

5

Claim 11. The electronic information
terminal according any one of claims 1 through 10,
wherein when the input data correspond to
personal data, the input data are stored in the
10 storage or transmitted to the server by the
communication controller, and the input data are
deleted from the display unit.

15

Claim 12. The electronic information
terminal according any one of claims 1 through 11,
wherein the display section includes a
display having a memory function.

20

Claim 13. The electronic information
terminal according any one of claims 1 through 12,
wherein the display unit inputs handwriting
data.

25

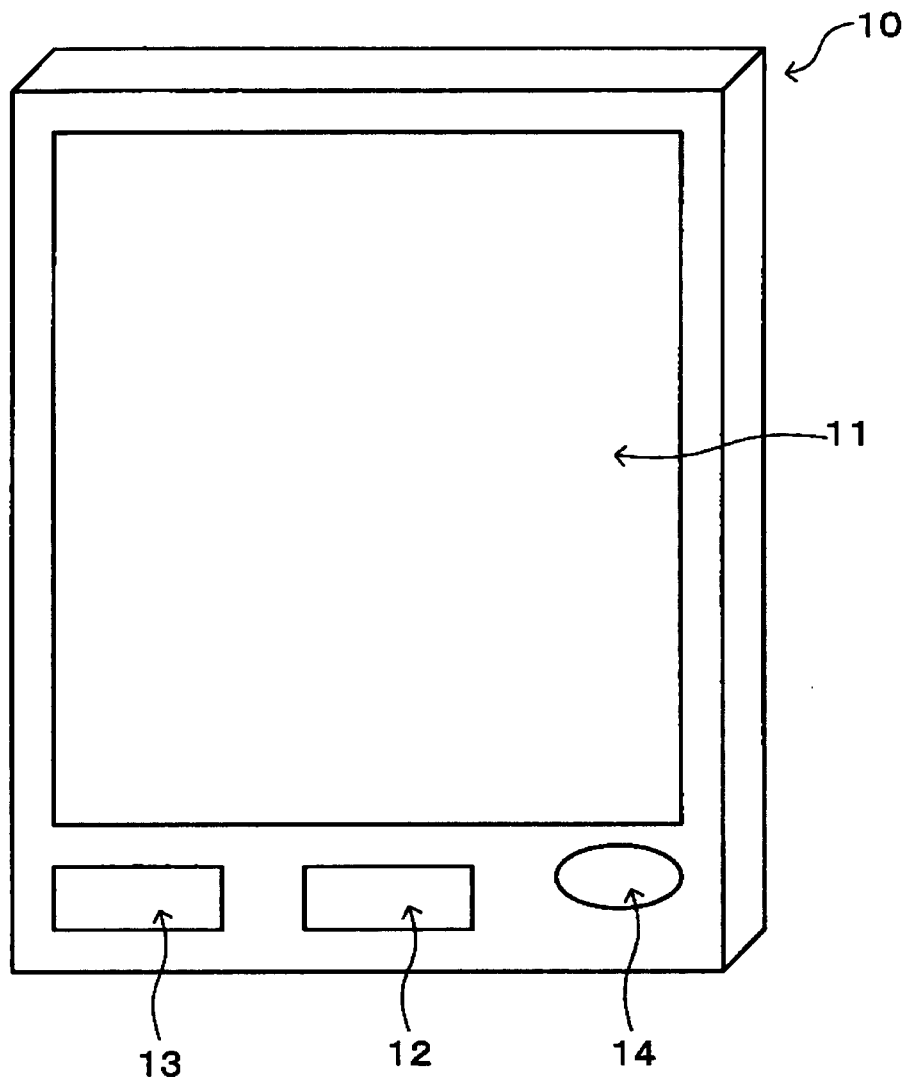
Claim 14. An electronic information system
comprising:

the electronic information terminal
according to any one of claims 1 through 13; and

5 a server in communication with the
electronic information terminal with a network.

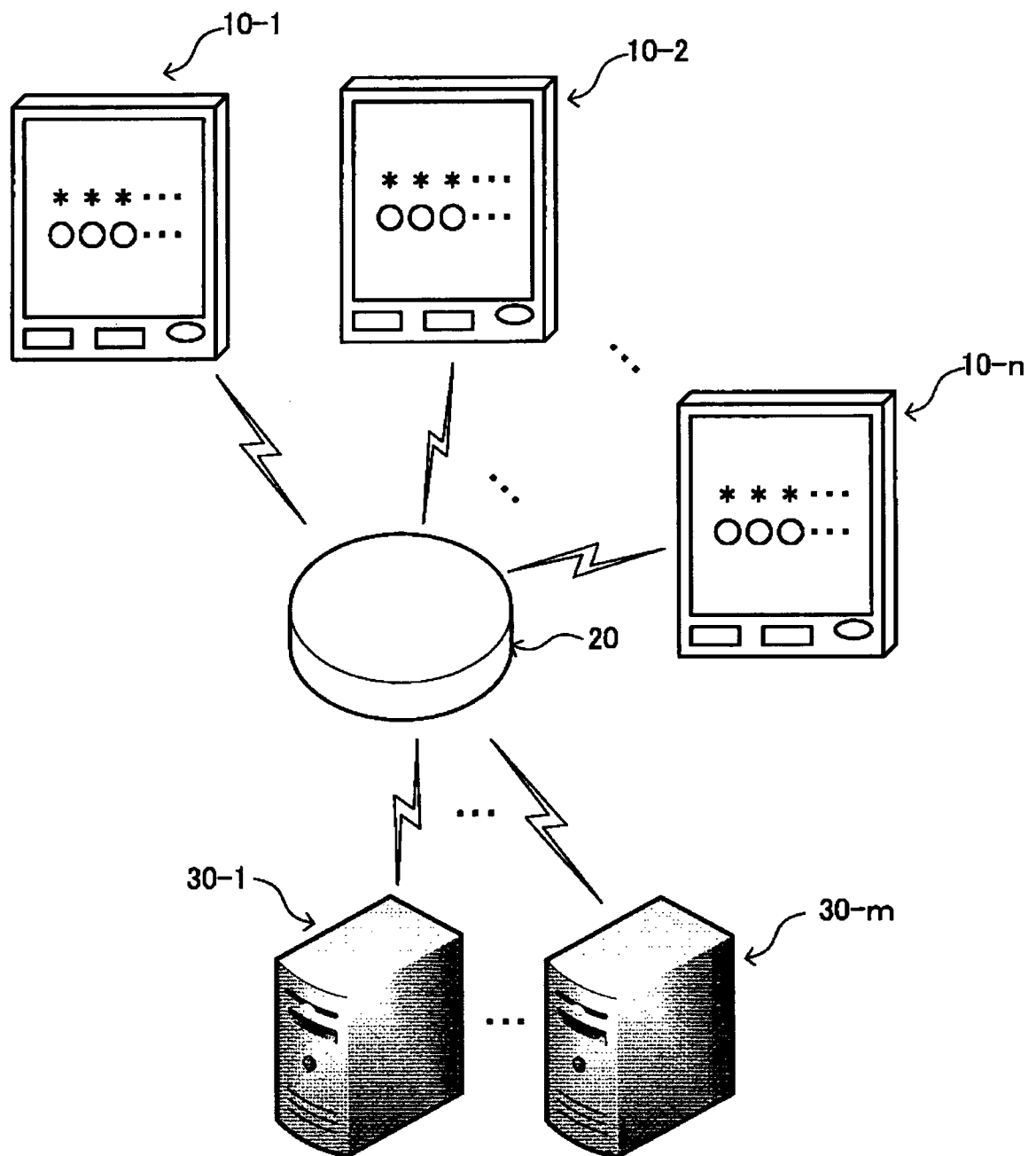
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FIG.1



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FIG.2



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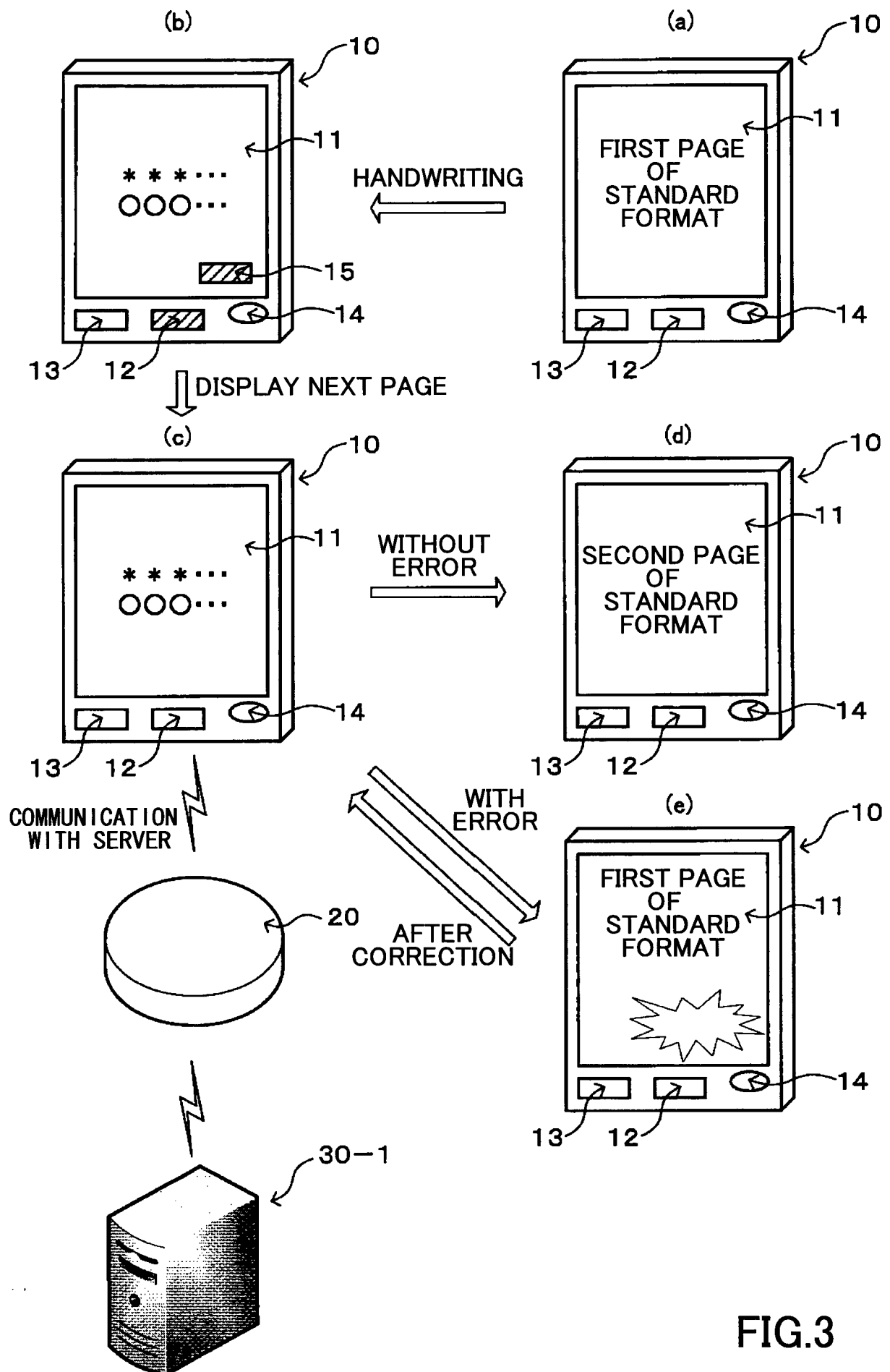
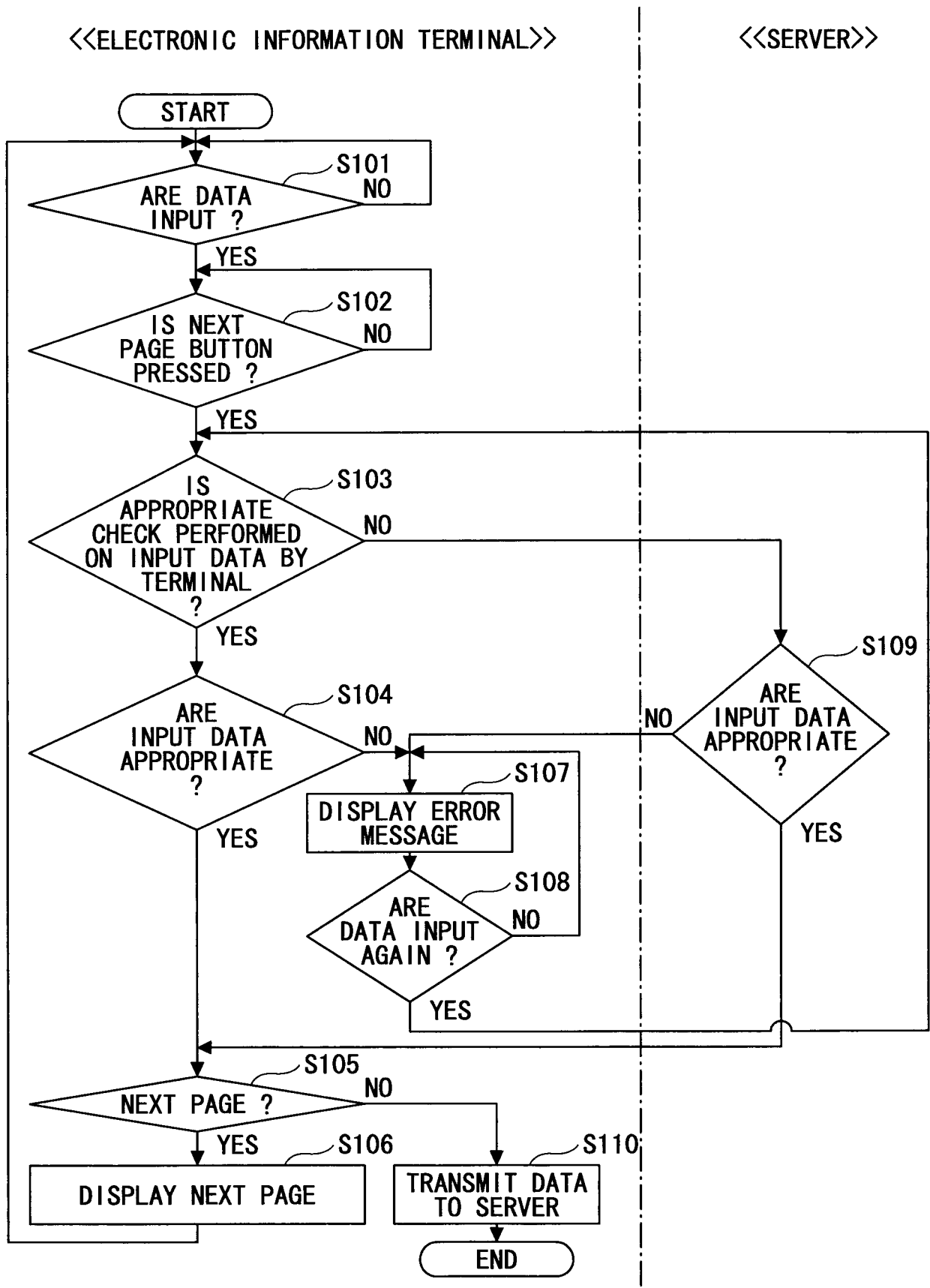


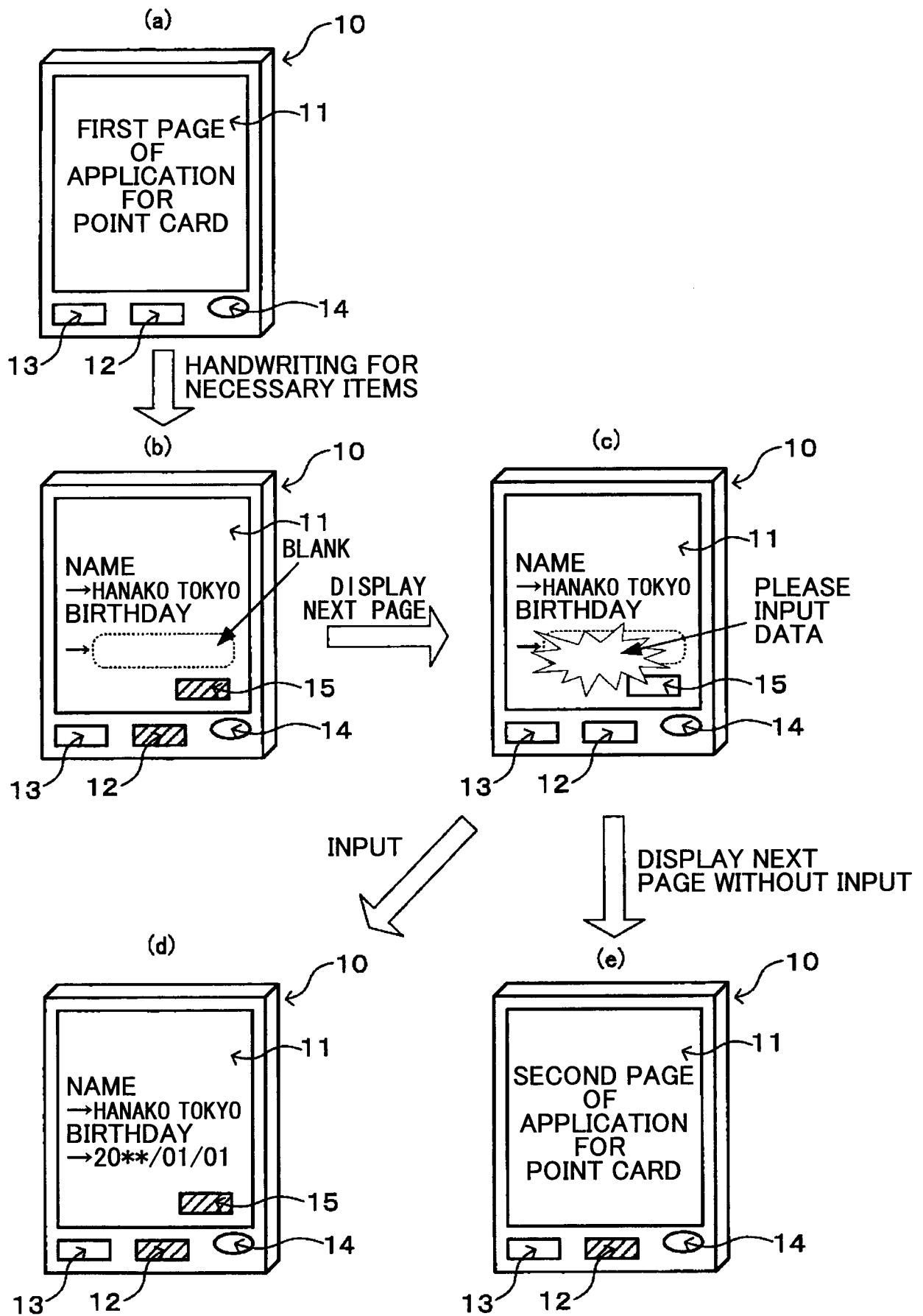
FIG.3

FIG.4



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FIG.5



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FIG.6

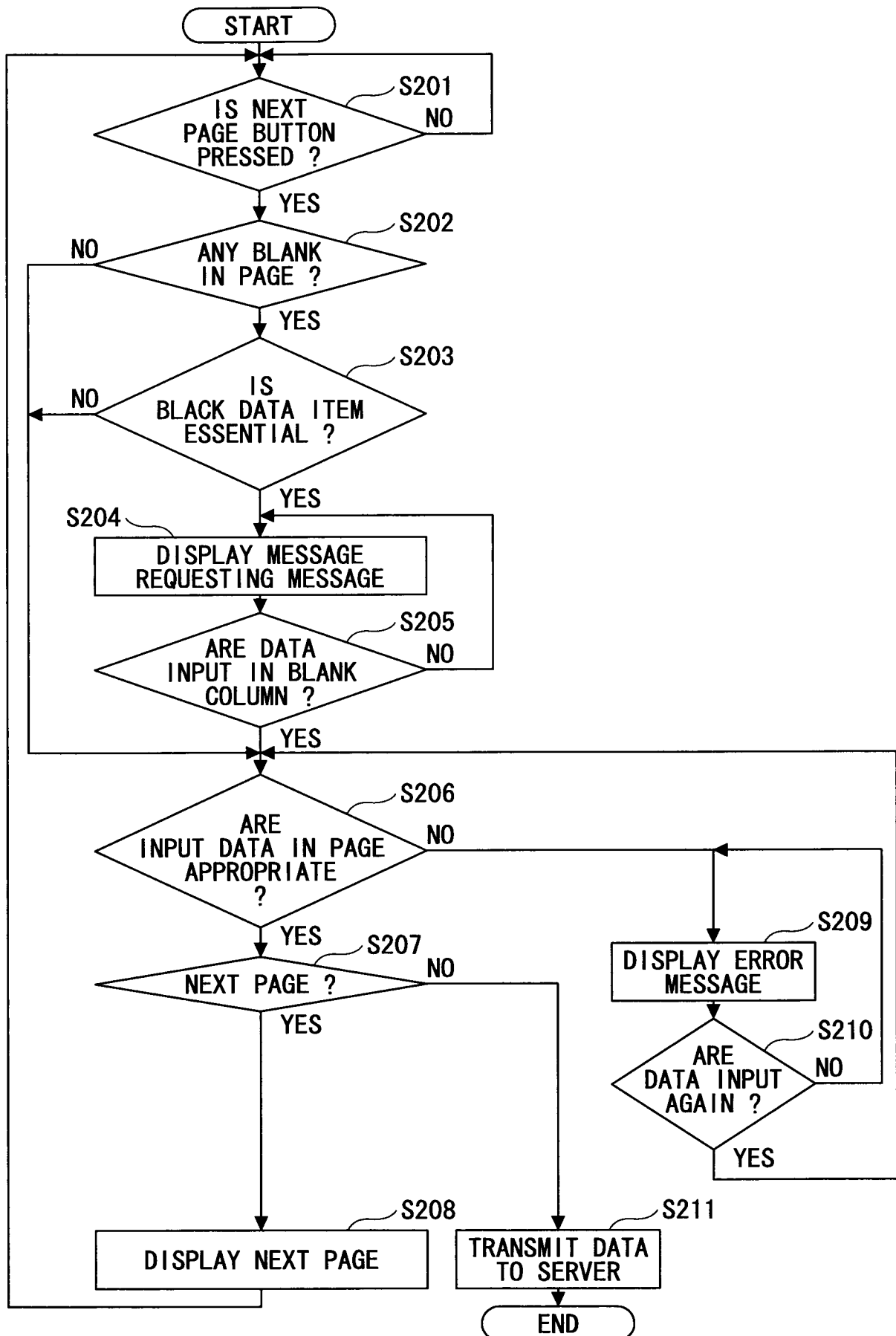


FIG.7

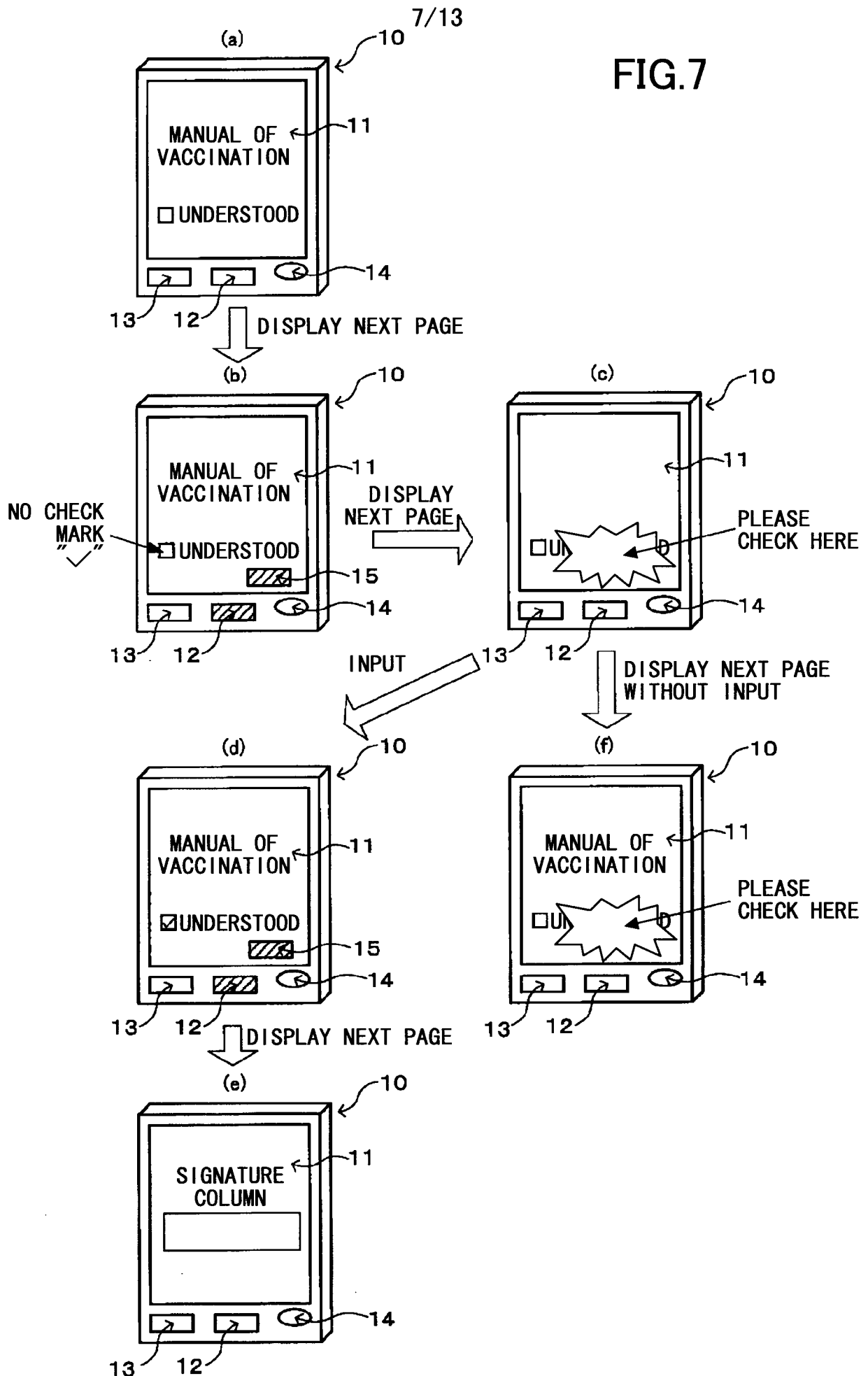


FIG.8

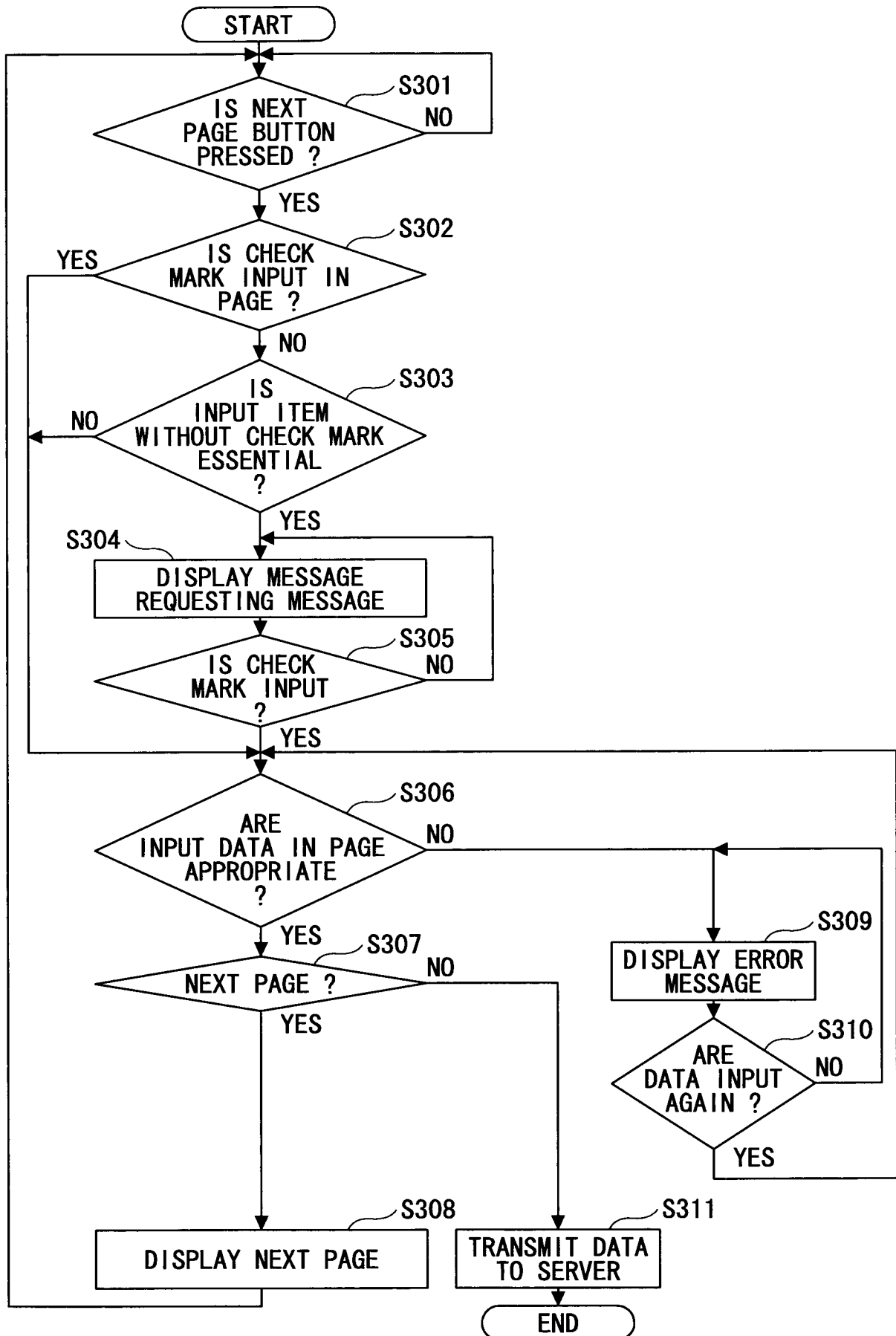
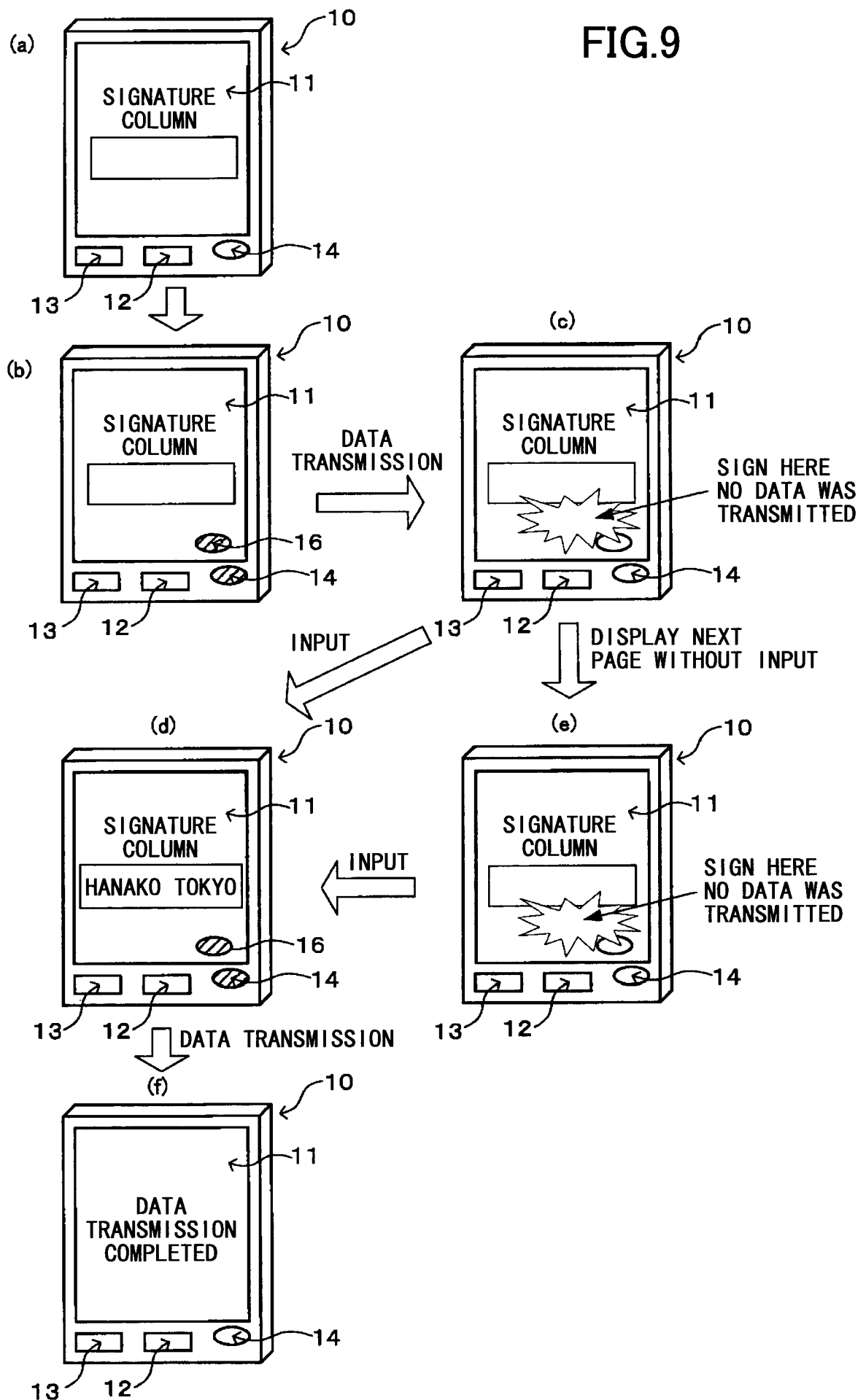
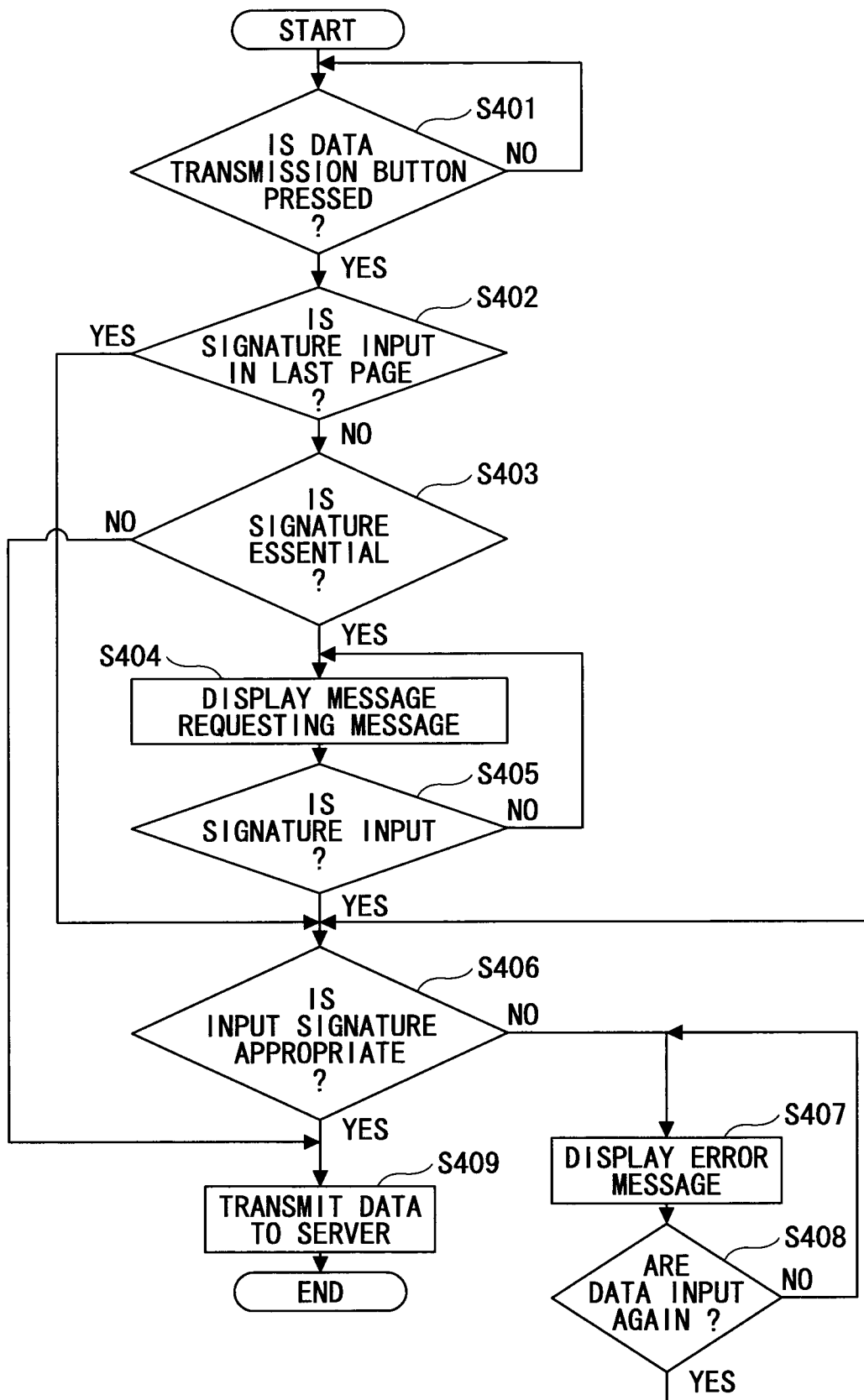


FIG.9



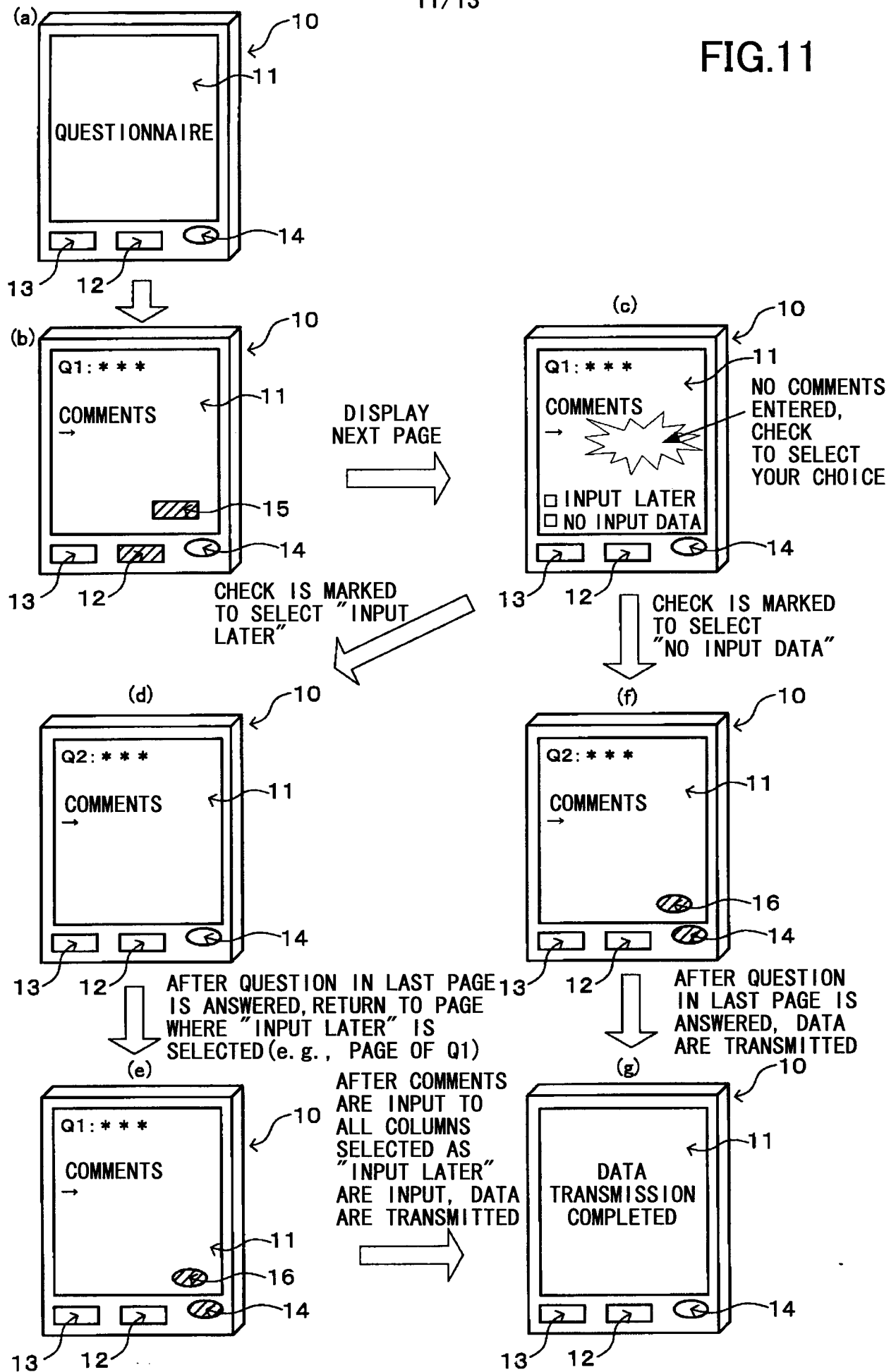
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FIG.10



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FIG.11



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FIG.12

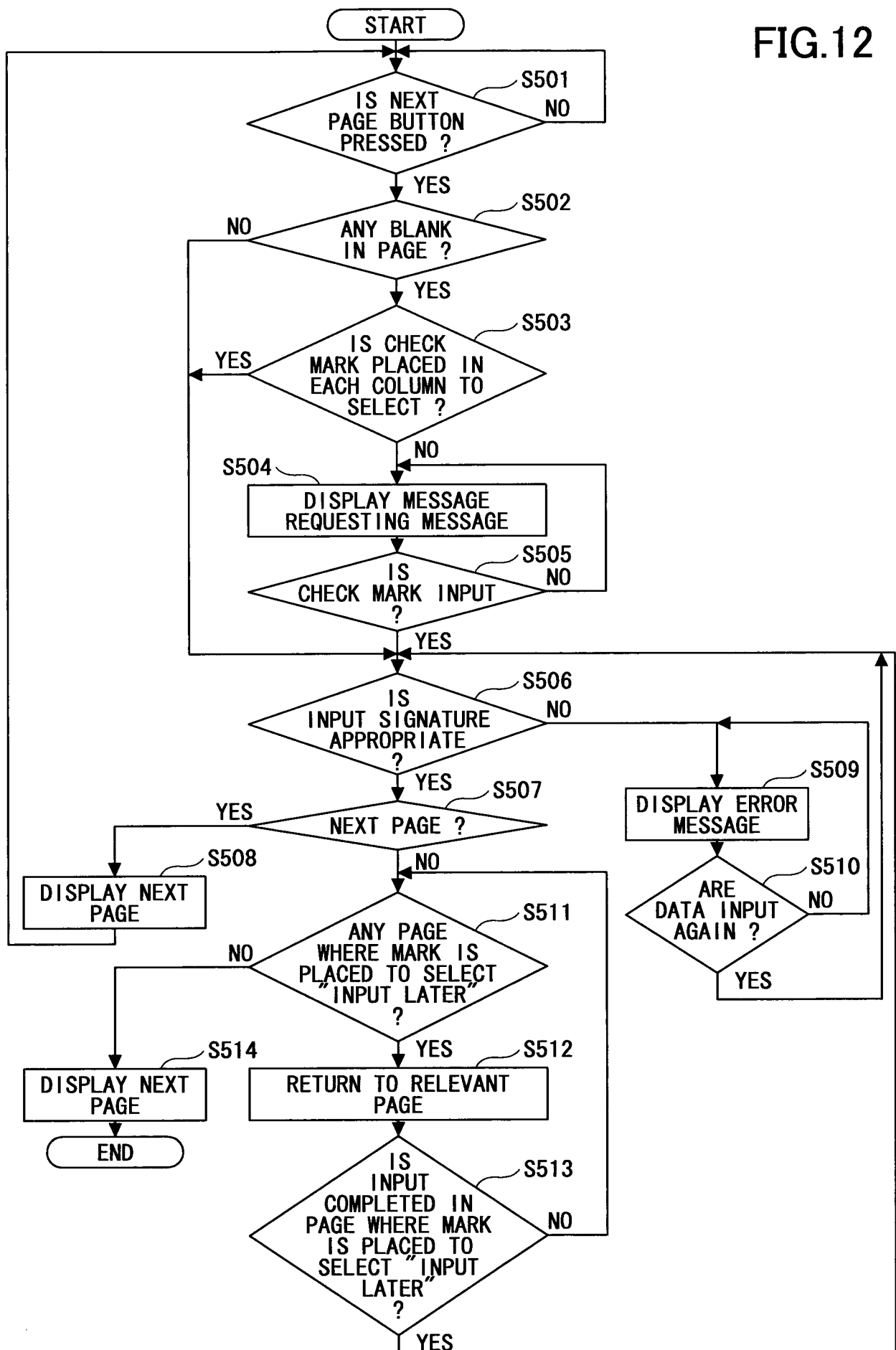
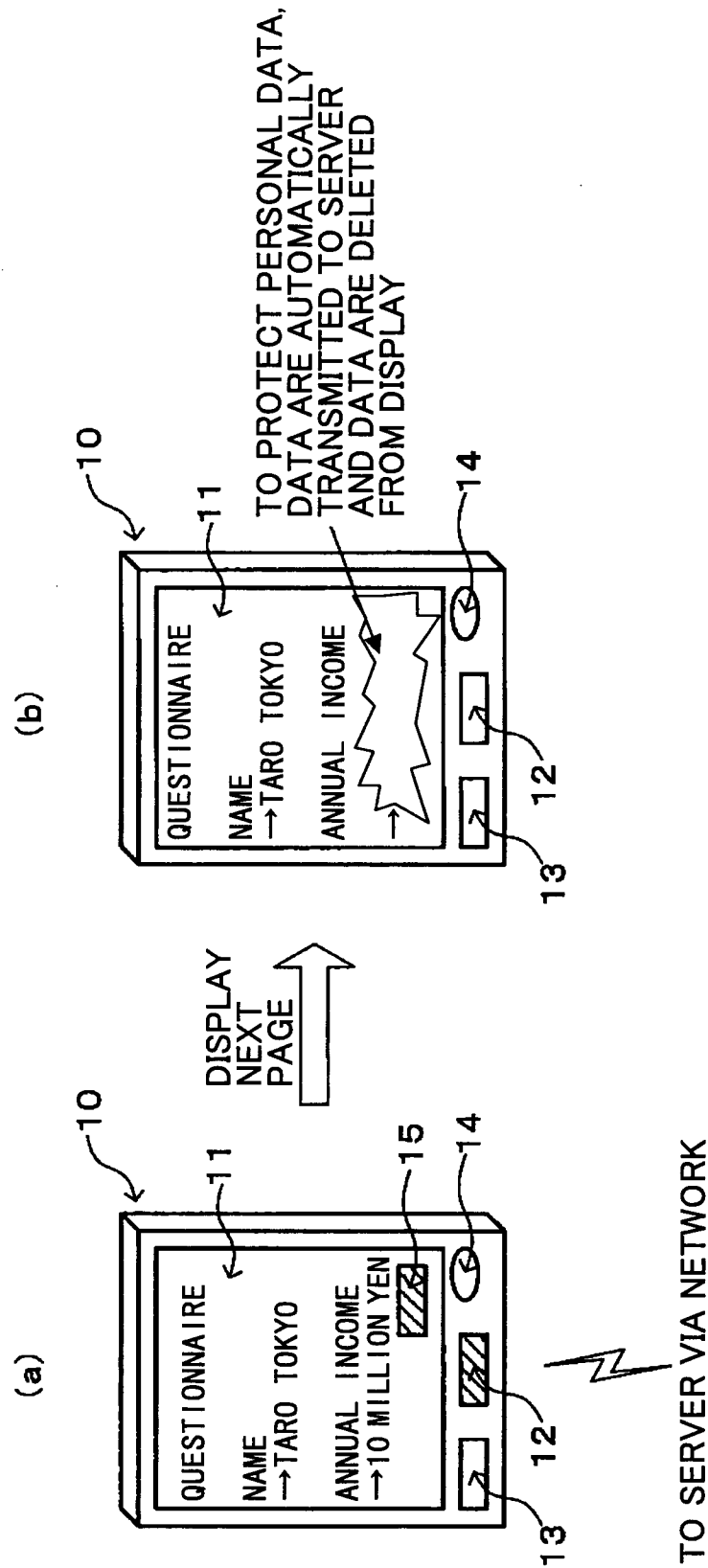


FIG.13



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2011/078631

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. G06F13/00 (2006.01) i, G06F3/048 (2006.01) i, G06F15/00 (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)

Int.Cl. G06F13/00, G06F3/048, G06F15/00

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

Published examined utility model applications of Japan 1922-1996
 Published unexamined utility model applications of Japan 1971-2012
 Registered utility model specifications of Japan 1996-2012
 Published registered utility model applications of Japan 1994-2012

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2002-063488 A (Sony Corporation) 2002.02.28, [0104]-[0112] & US 2003/0158893 A1 & EP 1274029 A1 & WO 2001/084403 A1 & WO 2001/077924 A1 & CA 2404960 A & CN 1429376 A	1-14
A	JP 2008-269515 A (Hitachi, Ltd.) 2008.11.06, [0047]-[0049], [0064]-[0066] (Family:none)	1-14
A	JP 2003-281040 A (Hitachi Information Systems, Ltd.) 2003.10.03, abstract (Family:none)	1-14
A	JP 2000-305754 A (Fujitsu Limited) 2000.11.02, [0032]-[0033], [0037], [0079], [0089] (Family:none)	1-14



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

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2011/078631

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2006-065577 A (Fujitsu Limited) 2006.03.09, [0022]-[0025], fig 11 & US 2006/0048219 A1	1-14