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(71) Applicant and
(72) Inventor: **BAEK, Sang-Ju** [KR/KR]; Rm#202, 313-1, Mia8-dong, Gangbuk-gu, Seoul 142-814 (KR).

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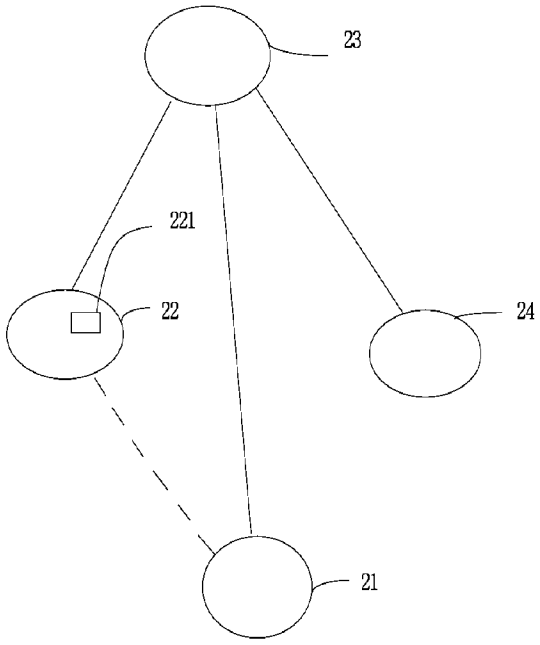
(54) **Title:** VENDING MACHINE SYSTEM USING MOBILE PHONE AND METHOD THEREOF




(57) **Abstract:** The present invention relates to a business model. More specifically, the invention relates to an automatic selling system allowing purchase of products using a mobile phone and a method of controlling a management server, which allow a buyer to purchase products or services from a vending machine using a mobile phone even when the buyer does not have money or a credit card, thereby giving convenience to him or her. There is provided an automatic selling system comprising: a vending machine having a display unit installed thereon for providing products to a buyer, a management server connected to the vending machine through a network, for requesting the buyer's mobile phone number information and payment on a corresponding amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific product stored in the vending machine and controlling the dispense of products stored in a corresponding vending machine in response to a signal inputted from the buyer's mobile phone and simultaneously transmitting a payment receipt to the buyer's mobile phone, and the mobile communication company server for storing data on money deposited in advance by a buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount.

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# Description

# VENDING MACHINE SYSTEM USING MOBILE PHONE AND METHOD THEREOF

## Technical Field

[1] The present invention relates to a business model. More specifically, the invention relates to an automatic selling system allowing purchase of products using a mobile phone and a method of controlling a management server, which allow a buyer to purchase products or services from a vending machine using a mobile phone even when the buyer does not have money or a credit card, thereby giving convenience to him or her.

## Background Art

[2] An automatic vending machine (hereinafter, referred to as a vending machine) is a machine that automatically dispenses products that a buyer desires if the buyer inserts money or a credit card thereto, thus functioning as an unmanned kiosk selling daily supplies such as drinks, foods, cigarettes, tickets, newspapers, magazines, stamps, socks, tissues, sanitary materials, or the like.

[3] Such a vending machine is managed by a remote management system connected through a network so as to construct an automatic selling system.

[4] FIG. 1 is a schematic diagrammatic view illustrating the configuration of a conventional automatic selling system. As shown in FIG. 1, in the conventional automatic selling system, a vending machine 12 transmits sales information to a management server 13 if a buyer 11 inserts money into the vending machine 12 and the vending machine 12 dispenses products to the buyer 11, thereby allowing a manager to easily manage the vending machines 12 even at a remote place.

[5] However, such a conventional automatic selling system is inconvenient in that a buyer who does not have money or a credit card cannot use a vending machine 12 since the vending machine 12 is constructed such that buyers 11 can purchase products only when they have money or a credit card.

## Disclosure of Invention

## Technical Problem

[6] Accordingly, the present invention has been made in order to solve the above problem, and it is an object of the invention to provide an automobile selling system allowing purchase of products using a mobile phone and a method of controlling a management server, which allow a buyer to purchase products or services from a vending machine using a mobile phone even when the buyer does not have money or a credit card, thereby giving convenience to him or her.

## Technical Solution

[7] In order to accomplish the above object, according to one aspect of the invention, there is provided an automatic selling system allowing purchase of products using a mobile phone, comprising: a vending machine having a display unit installed thereon for providing products to a buyer, a management server connected to the vending machine through a network, for requesting the buyer's mobile phone number information and payment on an amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific product stored in the vending machine and controlling the dispense of products stored in a corresponding vending machine in response to a signal inputted from the buyer's mobile phone and simultaneously transmitting a payment receipt to the buyer's mobile phone, and the mobile communication company server for storing data on money deposited in advance by a buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount, wherein the buyer's mobile phone, the management server, the mobile communication company server, and the vending machine are connected to one another through a wired or wireless network.

[8] According to one aspect of the invention, there is provided a method of controlling an automatic selling management server allowing purchase of products using a mobile phone, comprising the steps of: determining whether a call connection between a management server and a buyer's mobile phone is established and receiving a vending machine identification (ID) from the buyer's mobile phone if the call connection is established, displaying the establishment of the call connection by displaying a buyer's mobile phone number on the vending machine if the vending machine identification is inputted from the buyer's mobile phone, receiving a product code of a specific product stored in the vending machine from the buyer's mobile phone and displaying the product code inputted by a buyer on the vending machine, requesting the buyer's mobile phone number information from a mobile communication company server and confirming the buyer's mobile phone number information, requesting payment on an amount corresponding to a price of the product from the mobile communication company server where data on money deposited in advance by the buyer is stored and instantly confirming approval of the payment on the amount corresponding to the price of the product, transmitting a command for allowing the vending machine to dispense the corresponding product to the vending machine, and determining whether the call connection between the management server and the buyer's mobile phone is released and sending a receipt to the buyer's mobile phone through a short message service

(SMS) if the call connection is released.

[9] According to another aspect of the invention, there is provided an automatic selling system allowing purchase of products using a mobile phone, comprising: a vending machine having a display unit and a key input unit installed thereon for providing products to a buyer, a management server connected to the vending machine through a network, for requesting the buyer's mobile phone number information and payment on an amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific product stored in the vending machine and controlling the dispense of products stored in a corresponding vending machine in response to a signal inputted from the buyer's mobile phone or the vending machine key input unit and simultaneously transmitting a payment receipt to the buyer's mobile phone, and the mobile communication company server for storing data on money deposited in advance by a buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount, wherein the buyer's mobile phone, the management server, the mobile communication company server, and the vending machine are connected to one another through a wired or wireless network.

[10] According to another aspect of the invention, there is provided a method of controlling an automatic selling management server allowing purchase of products using a mobile phone, comprising the steps of: determining whether a call connection between a management server and a buyer's mobile phone is established and receiving a buyer's mobile phone number from a key input unit of a vending machine if the call connection is established, recognizing a corresponding vending machine and receiving a product code of a specific product stored in the vending machine from the key input unit of the corresponding vending machine if the buyer's mobile phone number is inputted from the vending machine after the call connection between the management server and the buyer's mobile phone is established, requesting the buyer's mobile phone number information from a mobile communication company server and confirming the buyer's mobile phone number information, requesting payment on an amount corresponding to a price of the product from the mobile communication company server where data on money deposited in advance by a buyer is stored and instantly confirming approval of the payment on the amount corresponding to the price of the product, displaying confirmation of the dispense on a display unit of the vending machine, determining whether a call connection between the management server and the buyer's mobile phone is established and transmitting a command for allowing the vending machine to dispense the corresponding product to the vending machine if the call connection is established, and determining whether the call connection between

the management server and the buyer's mobile phone is released and sending a receipt to the buyer's mobile phone through a short message service (SMS) if the call connection is released.

[11] According to still another aspect of the invention, there is provided an automatic selling system allowing purchase of products using a mobile phone, comprising: a terminal having a display unit installed thereon for providing services to a buyer, a management server connected to the terminal through a network, for requesting the buyer's mobile phone number information and payment on an amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific service product of the terminal and approving the specific service product related to the corresponding terminal in response to a signal inputted from the buyer's mobile phone and simultaneously transmitting a payment receipt to the buyer's mobile phone, and the mobile communication company server for storing data on money deposited in advance by the buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount, wherein the buyer's mobile phone, the management server, the mobile communication company server, and the terminal are connected to one another through a wired or wireless network.

[12] According to still another aspect of the invention, there is provided a method of controlling an automatic selling management server allowing purchase of products using a mobile phone, comprising the steps of: determining whether a call connection between a management server and a buyer's mobile phone is established and receiving a terminal identification (ID) from the buyer's mobile phone if the call connection is established, requesting the buyer's mobile phone number information from a mobile communication company server and confirming the buyer's mobile phone number information, displaying approval of using a service on the terminal, determining whether the call connection between the management server and the buyer's mobile phone is released and counting time after transmitting approval of using the service also to the buyer's mobile phone through a short message service (SMS) if the call connection is released, determining whether a call connection between the management server and the buyer's mobile phone is established and receiving a terminal identification from the buyer's mobile phone if the call connection is established, calculating and displaying a fee for using the specific service product of the terminal based on the elapsed time of the corresponding terminal, requesting the buyer's mobile phone number information from the mobile communication company server and confirming the buyer's mobile phone number information, requesting payment on an amount corresponding to the fee for using the service from the mobile communication company server where data on

money deposited in advance by a buyer is stored and instantly confirming approval of the payment on the amount corresponding to the fee for using the service from the mobile communication company server, displaying completion of the payment for using the service on the terminal, and determining whether the call connection between the management server and the buyer's mobile phone is released and sending a receipt to the buyer's mobile phone through an SMS if the call connection is released.

## Advantageous Effects

[13] As described above, the present invention allows a buyer to purchase products or services from a vending machine using a mobile phone even when the buyer does not have money or a credit card, thereby giving convenience to him or her.

## Brief Description of the Drawings

[14] Further objects and advantages of the invention can be more fully understood from the following detailed description taken in conjunction with the accompanying drawings in which:

[15] FIG. 1 is a schematic diagrammatic view illustrating the configuration of a conventional automatic selling system;

[16] FIG. 2 is a schematic diagrammatic view illustrating the configuration of an automatic selling system allowing purchase of products using a mobile phone according to a first embodiment of the present invention;

[17] FIG. 3 is the flowchart illustrating a method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the first embodiment of the present invention;

[18] FIG. 4 is a schematic diagrammatic view illustrating the configuration of an automatic selling system allowing purchase of products using a mobile phone according to a second embodiment of the present invention;

[19] FIG. 5 is the flowchart illustrating a method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the second embodiment of the present invention;

[20] FIG. 6 is a schematic diagrammatic view illustrating the configuration of an automatic selling system allowing purchase of products using a mobile phone according to a third embodiment of the present invention; and

[21] FIG. 7 is the flowchart illustrating a method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the third embodiment of the present invention.

[22]

## Mode for the Invention

[23] Hereinafter, the preferred embodiments of the present invention will be described in

detail with reference to the accompanying drawings so that those skilled in the art can easily embody the present invention. Together with the objects, operations, and effects of the present invention, the other objects, specific characteristics, and advantages provided by the present invention will be clarified further from the following description of the preferred embodiments.

[24] For reference, although the present invention will be described and illustrated in connection with the specific preferred embodiments, it will be readily understood by those skilled in the art that various adaptations and changes can be made thereto without departing from the spirit and scope of the present invention defined by the appended claims.

[25] FIG. 2 is a schematic diagrammatic view illustrating the configuration of an automatic selling system allowing purchase of products using a mobile phone according to a first embodiment of the present invention.

[26] As shown in FIG. 2, the automatic selling system allowing purchase of products using a mobile phone according the first embodiment of the present invention comprises a vending machine 22 having a display unit 221 installed thereon for providing products to a buyer 21, a management server 23 connected to the vending machine 22 through a network, for requesting payment from a mobile communication company server 24 when the buyer's mobile phone 21 requests purchase of a specific product stored in the vending machine 22 and controlling the dispense of products stored in a corresponding vending machine 22 in response to a signal inputted from the buyer's mobile phone 21 and simultaneously transmitting a payment receipt to the buyer's mobile phone 21, and a mobile communication company server 24 for storing data on money deposited in advance by the buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server 23 requests the buyer's mobile phone number information and payment on the corresponding amount.

[27] The management server 23 includes a buyer mobile phone number information database and a vending machine product database.

[28] FIG. 3 is the flowchart illustrating a method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the first embodiment of the present invention.

[29] As shown in FIG. 3, the method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the first embodiment of the present invention comprises the steps of starting the operation of the management server 23 S111, determining whether a call connection between the management server 23 and the buyer's mobile phone 21 is established S112, receiving a vending machine identification (ID) from the buyer's mobile phone 21 if the call

connection between the management server and the buyer's mobile phone 21 is established S113, displaying the establishment of the call connection by displaying a buyer's mobile phone number on the vending machine 22 if the vending machine identification is inputted from the buyer's mobile phone 21 S114, receiving a product code of a specific product stored in the vending machine 22 from the buyer's mobile phone 21 S115, displaying the product code inputted by the buyer on the vending machine 22 if the product code is inputted from the buyer's mobile phone 21 S116, requesting the buyer's mobile phone number information from the mobile communication company server 24 S117, confirming the buyer's mobile phone number information from the mobile communication company server 24 S118, requesting payment on an amount corresponding to the price of the product from the mobile communication company server 24 where data on money deposited in advance by the buyer is stored S119, instantly confirming approval of the payment on the amount corresponding to the price of the product from the mobile communication company server 24 S120, transmitting a command for allowing the vending machine to dispense the corresponding product to the vending machine 22 S121, determining whether the call connection between the management server and the buyer's mobile phone 21 is released S122, sending a receipt to the buyer's mobile phone 21 through a short message service (SMS) if the call connection between the management server and the buyer's mobile phone 21 is released S123, and terminating the operation S124.

[30] The operation of the automatic selling system allowing purchase of products using a mobile phone and a method of controlling the management server according to the first embodiment of the present invention will be described below.

[31] If power is applied and the operation sequence of FIG. 3 programmed and stored in a storage medium is executed by the management server 23, the operation starts S111.

[32] When the operation starts, the management server 23 determines whether a wireless call connection between the management server and the buyer's mobile phone 21 is established S112. If a buyer desires to purchase products displayed in the vending machine 22, the buyer looks at the telephone number for connecting to the management server 23 displayed on the display unit 221 of the vending machine 22 and connects to the management server 23 by trying a call to the corresponding telephone number using the buyer's mobile phone 21.

[33] If the wireless call connection between the management server and the buyer's mobile phone 21 is established in this manner, the management server 23 receives a vending machine identification from the buyer's mobile phone 21 S113. The buyer looks at the vending machine identification displayed on the display unit 221 of the vending machine 22 and transmits the corresponding vending machine identification to the management server 23 using the buyer's mobile phone 21.

[34] If the vending machine identification is inputted from the buyer's mobile phone 21, the management server 23 informs the buyer of the establishment of the call connection by transmitting a control signal to a vending machine 22 corresponding to the vending machine identification among a plurality of vending machines that it manages and displaying the buyer's mobile phone number (a calling telephone number) on the display unit 221 of the corresponding vending machine 22 S114.

[35] Next, the management server 23 receives a product code from the buyer's mobile phone 21 S115. The buyer selects the code of a product that the buyer desires to purchase among a plurality of product codes displayed on the display unit 221 of the vending machine 22 and transmits the corresponding product code to the management server 23 using the buyer's mobile phone 21.

[36] If the product code is inputted from the buyer's mobile phone 21, the management server 23 informs the buyer of the selection of the corresponding product by displaying the product code inputted by the buyer on the vending machine 22 S116.

[37] Next, the management server 23 requests the buyer's mobile phone number (a calling telephone number) information from the mobile communication company server 24 S117 and confirms the buyer's mobile phone number (a calling telephone number) information from the mobile communication company server 24 S118. The mobile communication company server 24 provides the buyer's mobile phone number (a calling telephone number) information to the management server 23.

[38] If the buyer's mobile phone number (a calling telephone number) information is confirmed, the management server 23 requests payment on the amount corresponding to the price of the product from the mobile communication company server 24 S119 and confirms approval of the payment on the amount corresponding to the price of the product from the mobile communication company server 24 S120. Data on money deposited in advance by the buyer is stored in the mobile communication company server 24, and the mobile communication company server 24 approves the payment on the buyer's mobile phone number (a calling telephone number) requested by the management server 23 based on the deposited money.

[39] If approval of the payment on the amount corresponding to the price of the product is confirmed, the management server 23 transmits a command for allowing the vending machine to dispense the corresponding product to the vending machine 22 so that the vending machine 22 may provide the corresponding product to the buyer S121.

[40] Next, the management server 23 determines whether the call connection between the management server and the buyer's mobile phone 21 is released S122, sends a receipt to the buyer's mobile phone 21 in a form of an SMS if the call connection between the management server and the buyer's mobile phone 21 is released S123, and terminates the operation S124.

[41] FIG. 4 is a schematic diagrammatic view illustrating the configuration of an automatic selling system allowing purchase of products using a mobile phone according to a second embodiment of the present invention.

[42] As shown in FIG. 4, the automatic selling system allowing purchase of products using a mobile phone according the second embodiment of the invention comprises a vending machine 32 having a display unit 321 and a key input unit 322 installed thereon for providing products to a buyer 31, a management server 33 connected to the vending machine 32 through a network, for requesting payment from a mobile communication company server 34 when the buyer's mobile phone 31 requests purchase of a specific product stored in the vending machine 32 and controlling the dispense of products stored in a corresponding vending machine 32 in response to a signal inputted from the buyer's mobile phone 31 or the vending machine key input unit 322 and simultaneously transmitting a payment receipt to the buyer's mobile phone 31, and a mobile communication company server 34 for storing data on money deposited in advance by the buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server 33 requests the buyer's mobile phone number information and payment on the corresponding amount.

[43] The management server 33 includes a buyer telephone number information database and a vending machine product database.

[44] FIG. 5 is the flowchart illustrating a method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the second embodiment of the present invention.

[45] As shown in FIG. 5, the method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the second embodiment of the present invention comprises the steps of starting the operation of the management server 33 S211, determining whether a call connection between the management server 33 and the buyer's mobile phone 31 is established S212, receiving a buyer's mobile phone number from the key input unit 322 of the vending machine 32 if the call connection between the management server and the buyer's mobile phone 31 is established S213, recognizing a corresponding vending machine 32 and receiving a product code of a specific product stored in the vending machine 32 from the key input unit 322 of the vending machine 32 if the buyer's mobile phone number is inputted from the vending machine 32 after the call connection between the management server and the buyer's mobile phone 31 is established S214, requesting the buyer's mobile phone number information from the mobile communication company server 34 if the product code is inputted from the key input unit 322 of the corresponding vending machine 32 S215, confirming the buyer's mobile phone number information from the

mobile communication company server 34 S216, requesting payment on an amount corresponding to the price of the product from the mobile communication company server 34 where data on money deposited in advance by the buyer is stored S217, instantly confirming approval of the payment on the amount corresponding to the price of the product from the mobile communication company server 34 S218, displaying confirmation of the dispense on the display unit 321 of the vending machine 32 S219, determining whether a call connection between the management server and the buyer's mobile phone 31 is established S220, transmitting a command for allowing the vending machine to dispense the corresponding product to the vending machine 32 if the call connection between the management server and the buyer's mobile phone 31 is established S221, determining whether the call connection between the management server and the buyer's mobile phone 31 is released S222, sending a receipt to the buyer's mobile phone 31 through a short message service (SMS) if the call connection between the management server and the buyer's mobile phone 31 is released S223, and terminating the operation S224.

[46] The operation of the automatic selling system allowing purchase of products using a mobile phone and a method of controlling the management server according to the second embodiment of the present invention will be described below.

[47] If power is applied and the operation sequence of FIG. 5 programmed and stored in a storage medium is executed by the management server 33, the operation starts S211.

[48] When the operation starts, the management server 33 determines whether a wireless call connection between the management server and the buyer's mobile phone 31 is established S212. If a buyer desires to purchase products displayed in the vending machine 32, the buyer looks at the telephone number for connecting to the management server 33 displayed on the display unit 321 of the vending machine 32 and connects to the management server 33 by trying a call to the corresponding telephone number using the buyer's mobile phone 31.

[49] After the call connection is established in this manner, a buyer's mobile phone number is inputted through the key input unit 322 of the vending machine 32 S213.

[50] Then, if the mobile phone number is inputted from the vending machine 32 after the call connection between the management server and the buyer's mobile phone 31 is established in this manner, the management server 33 recognizes a corresponding vending machine 32 and receives a product code from the key input unit 322 of the corresponding vending machine 32 S214.

[51] If the product code is inputted from the key input unit 322 of the corresponding vending machine 32 as described above, the management server 33 requests the buyer's mobile phone number information from a mobile communication company server 34 S215 and confirms the buyer's mobile phone number information from the

mobile communication company server 34 S216.

[52] If the buyer's mobile phone number information is confirmed, the management server 33 requests payment on the amount corresponding to the price of the product from the mobile communication company server 24 S217 and confirms approval of the payment on the amount corresponding to the price of the product from the mobile communication company server 34 S218. Data on money deposited in advance by the buyer is stored in the mobile communication company server 34, and the mobile communication company server 34 approves the payment on the buyer's mobile phone number requested by the management server 33 based on the deposited money.

[53] Next, the management server 33 displays confirmation of the dispense of the product selected by the buyer on the display unit 321 of the vending machine 32 S219 and determines whether a call connection between the management server and the buyer's mobile phone 31 is established S220.

[54] If the call connection between the management server and the buyer's mobile phone 31 is established, the management server 33 transmits a command for allowing the vending machine to dispense the corresponding product to the vending machine 32 so that the vending machine 32 may provide the corresponding product to the buyer S221.

[55] Next, the management server 33 determines whether the call connection between the management server and the buyer's mobile phone 31 is released S222, sends a receipt to the buyer's mobile phone 31 in a form of an SMS if the call connection between the management server and the buyer's mobile phone 31 is released S223, and terminates the operation S224.

[56] Meanwhile, the present invention can be applied not only to vending machines selling daily supplies, but also to unmanned terminals selling services such as playing a game, parking a car, or the like.

[57] FIG. 6 is a schematic diagrammatic view illustrating the configuration of an automatic selling system allowing purchase of products using a mobile phone according to a third embodiment of the present invention.

[58] As shown in FIG. 6, the automatic selling system allowing purchase of products using a mobile phone according the third embodiment of the invention comprises a terminal 42 having a display unit 421 installed thereon for providing services to a buyer 41, a management server 43 connected to the terminal 42 through a network, for requesting payment from a mobile communication company server 44 when the buyer's mobile phone 41 requests purchase of a specific service product of the terminal and approving the specific service product related to the corresponding terminal 42 in response to a signal inputted from the buyer's mobile phone 41 and simultaneously transmitting a payment receipt to the buyer's mobile phone 41, and a mobile communication company server 44 for storing data on money deposited in advance by the

buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server 43 requests the buyer's mobile phone number information and payment on the corresponding amount.

[59] The management server 43 includes a buyer telephone number information database and a vending machine product database.

[60] FIG. 7 is the flowchart illustrating a method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the third embodiment of the present invention.

[61] As shown in FIG. 7, the method of controlling an automatic selling management server allowing purchase of products using a mobile phone according to the third embodiment of the present invention comprises the steps of starting the operation of the management server 43 S311, determining whether a call connection between the management server 43 and the buyer's mobile phone 41 is established S312, receiving a terminal identification (ID) from the buyer's mobile phone 41 if the call connection between the management server and the buyer's mobile phone 41 is established S313, requesting the buyer's mobile phone number information from the mobile communication company server 44 if the terminal identification is inputted from the buyer's mobile phone 41 S314, confirming the buyer's mobile phone number information from the mobile communication company server 44 S315, displaying approval of using a service on the terminal 42 S316, determining whether the call connection between the management server and the buyer's mobile phone 41 is released S317, counting time after transmitting approval of using the service also to the buyer's mobile phone 41 through a short message service (SMS) if the call connection between the management server and the buyer's mobile phone 41 is released S318, determining whether a call connection between the management server and the buyer's mobile phone 41 is established S319, receiving a terminal identification from the buyer's mobile phone 41 if the call connection between the management server and the buyer's mobile phone 41 is established S320, calculating and displaying a fee for using the specific service product of the terminal based on the elapsed time of the corresponding terminal 42 if the terminal identification is inputted from the buyer's mobile phone 41 S321, requesting the buyer's mobile phone number information from the mobile communication company server 44 S322, confirming the buyer's mobile phone number information from the mobile communication company server 44 S323, requesting payment on an amount corresponding to the fee for using the service from the mobile communication company server 44 where data on money deposited in advance by the buyer is stored S324, instantly confirming approval of the payment on the amount corresponding to the fee for using the service from the mobile com-

munication company server 44 S325, displaying completion of the payment for using the service on the terminal S326, determining whether the call connection between the management server and the buyer's mobile phone 41 is released S327, sending a receipt to the buyer's mobile phone 41 through an SMS if the call connection between the management server and the buyer's mobile phone 41 is released S328, and terminating the operation S329.

[62] The operation of the automatic selling system allowing purchase of products using a mobile phone and a method of controlling the management server according to the third embodiment of the present invention will be described below.

[63] If power is applied and the operation sequence of FIG. 7 programmed and stored in a storage medium is executed by the management server 43, the operation starts S311.

[64] When the operation starts, the management server 43 determines whether a wireless call connection between the management server and the buyer's mobile phone 41 is established S312. If a buyer desires to use a service provided by a terminal 42, such as playing a game, parking a car, or the like, the buyer looks at the telephone number for connecting to the management server 43 displayed on the display unit 421 of the terminal 42 and connects to the management server 43 by trying a call to the corresponding telephone number using the buyer's mobile phone 41.

[65] If the wireless call connection between the management server and the buyer's mobile phone 41 is established in this manner, the management server 43 receives a terminal identification from the buyer's mobile phone 41 S313. The buyer looks at the terminal identification displayed on the display unit 421 of the terminal 42 and transmits the corresponding terminal identification to the management server 43 using the buyer's mobile phone 41.

[66] If the terminal identification is inputted from the buyer's mobile phone 41, the management server 43 requests the buyer's mobile phone number information from the mobile communication company server 44 S314 and confirms the buyer's mobile phone number information from the mobile communication company server 44 S315. The mobile communication company server 44 provides the buyer's mobile phone number information to the management server 43.

[67] After confirming the buyer's mobile phone number information, the management server 43 displays approval of using the service on the terminal 42 S316.

[68] Next, the management server 43 determines whether the call connection between the management server and the buyer's mobile phone 41 is released S317 and starts to count time after transmitting approval of using the service also to the buyer's mobile phone 41 through an SMS if the call connection between the management server and the buyer's mobile phone 41 is released S318.

[69] From this time, the buyer uses the service provided by the terminal 42, such as

playing a game, parking a car, or the like.

[70] Next, the management server 43 determines whether a call connection between the management server and the buyer's mobile phone 41 is established S319. In order to pay a fee after using the service provided by a terminal 42, such as playing a game, parking a car, or the like, the buyer looks at the telephone number for connecting to the management server 43 displayed on the display unit 421 of the terminal 42 and connects to the management server 43 by trying a call to the corresponding telephone number using the buyer's mobile phone 41.

[71] If the call connection between the management server and the buyer's mobile phone 41 is established, the management server 43 receives a terminal identification from the buyer's mobile phone 41 S320. The buyer looks at the terminal identification displayed on the display unit 421 of the terminal 42 and transmits the corresponding terminal identification to the management server 43 using the buyer's mobile phone 41.

[72] If the terminal identification is inputted from the buyer's mobile phone 41, the management server 43 calculates a fee for using the service based on the elapsed time of the corresponding terminal 42 and displays the fee on the display unit 421 S321.

[73] Next, the management server 43 requests the buyer's mobile phone number information from the mobile communication company server 44 S322 and confirms the buyer's mobile phone number information from the mobile communication company server 44 S323. The mobile communication company server 44 provides the buyer's mobile phone number information to the management server 43.

[74] After confirming the buyer's mobile phone number information, the management server 43 requests payment on the amount corresponding to the fee for using the service from the mobile communication company server 44 S324 and confirms approval of the payment on the amount corresponding to the fee for using the service from the mobile communication company server 44 S325. Data on money deposited in advance by the buyer is stored in the mobile communication company server 44, and the mobile communication company server 44 approves the payment on the buyer's mobile phone number requested by the management server 43 based on the deposited money.

[75] Next, the management server 43 displays completion of the payment for using the service on the terminal 44 S326.

[76] Next, the management server 43 determines whether the call connection between the management server and the buyer's mobile phone 41 is released S327, sends a receipt to the buyer's mobile phone 41 through an SMS if the call connection between the management server and the buyer's mobile phone 41 is released S328, and terminates the operation S329.

[77]

[78]

[79]

[80]

# Claims

[1] An automobile selling system allowing purchase of products using a mobile phone, comprising:
a vending machine having a display unit installed thereon for providing products to a buyer;
a management server connected to the vending machine through a network, for requesting the buyer's mobile phone number information and payment on an amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific product stored in the vending machine, and controlling the dispense of products stored in a corresponding vending machine in response to a signal inputted from the buyer's mobile phone and simultaneously transmitting a payment receipt to the buyer's mobile phone; and
the mobile communication company server for storing data on money deposited in advance by a buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount,
wherein the buyer's mobile phone, the management server, the mobile communication company server, and the vending machine are connected to one another through a wired or wireless network.

[2] A method of controlling a management server of an automobile selling system allowing purchase of products using a mobile phone, comprising the steps of:
determining whether a call connection between a management server and a buyer's mobile phone is established and receiving a vending machine identification (ID) from the buyer's mobile phone if the call connection is established;
displaying the establishment of the call connection by displaying a buyer's mobile phone number on a vending machine if the vending machine identification is inputted from the buyer's mobile phone;
receiving a product code of a specific product stored in the vending machine from the buyer's mobile phone and displaying the product code inputted by a buyer on the vending machine;
requesting the buyer's mobile phone number information from a mobile communication company server and confirming the buyer's mobile phone number information;
requesting payment on an amount corresponding to a price of the product from the mobile communication company server where data on money deposited in advance by the buyer is stored and instantly confirming approval of the payment on

the amount corresponding to the price of the product;
transmitting a command for allowing the vending machine to dispense the corresponding product to the vending machine; and
determining whether the call connection between the management server and the buyer's mobile phone is released and sending a receipt to the buyer's mobile phone through a short message service (SMS) if the call connection is released.

[3] An automobile selling system allowing purchase of products using a mobile phone, comprising:
a vending machine having a display unit and a key input unit installed thereon for providing products to a buyer;
a management server connected to the vending machine through a network, for requesting the buyer's mobile phone number information and payment on an amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific product stored in the vending machine and controlling the dispense of products stored in a corresponding vending machine in response to a signal inputted from the buyer's mobile phone or the vending machine key input unit and simultaneously transmitting a payment receipt to the buyer's mobile phone; and
the mobile communication company server for storing data on money deposited in advance by a buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount,
wherein the buyer's mobile phone, the management server, the mobile communication company server, and the vending machine are connected to one another through a wired or wireless network.

[4] A method of controlling a management server of an automobile selling system allowing purchase of products using a mobile phone, comprising the steps of:
determining whether a call connection between a management server and a buyer's mobile phone is established and receiving a buyer's mobile phone number from a key input unit of a vending machine if the call connection is established;
recognizing a corresponding vending machine and receiving a product code of a specific product stored in the vending machine from the key input unit of the corresponding vending machine if the buyer's mobile phone number is inputted from the vending machine after the call connection between the management server and the buyer's mobile phone is established;
requesting the buyer's mobile phone number information from a mobile com-

munication company server and confirming the buyer's mobile phone number information;

requesting payment on an amount corresponding to a price of the product from the mobile communication company server where data on money deposited in advance by a buyer is stored and instantly confirming approval of the payment on the amount corresponding to the price of the product;

displaying confirmation of the dispense on a display unit of the vending machine;

determining whether a call connection between the management server and the buyer's mobile phone is established and transmitting a command for allowing the vending machine to dispense the corresponding product to the vending machine if the call connection is established; and

determining whether the call connection between the management server and the buyer's mobile phone is released and sending a receipt to the buyer's mobile phone through a short message service (SMS) if the call connection is released.

[5] An automobile selling system allowing purchase of products using a mobile phone, comprising:

a terminal having a display unit installed thereon for providing services to a buyer;

a management server connected to the terminal through a network, for requesting the buyer's mobile phone number information and payment on an amount from a mobile communication company server when the buyer's mobile phone requests purchase of a specific service product of the terminal and approving the specific service product related to the corresponding terminal in response to a signal inputted from the buyer's mobile phone and simultaneously transmitting a payment receipt to the buyer's mobile phone; and

the mobile communication company server for storing data on money deposited in advance by a buyer, and providing the buyer's mobile phone number information to the management server and approving the payment on a corresponding amount if the management server requests the buyer's mobile phone number information and payment on the corresponding amount,

wherein the buyer's mobile phone, the management server, the mobile communication company server, and the terminal are connected to one another through a wired or wireless network.

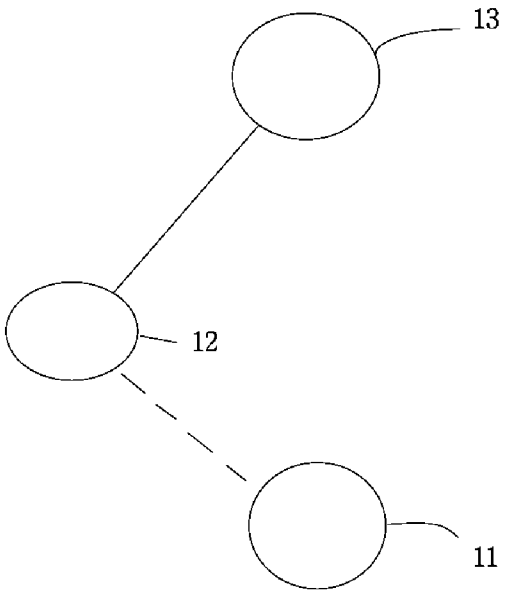
[6] A method of controlling a management server of an automobile selling system allowing purchase of products using a mobile phone, comprising the steps of:

determining whether a call connection between a management server and a buyer's mobile phone is established and receiving a terminal identification (ID)

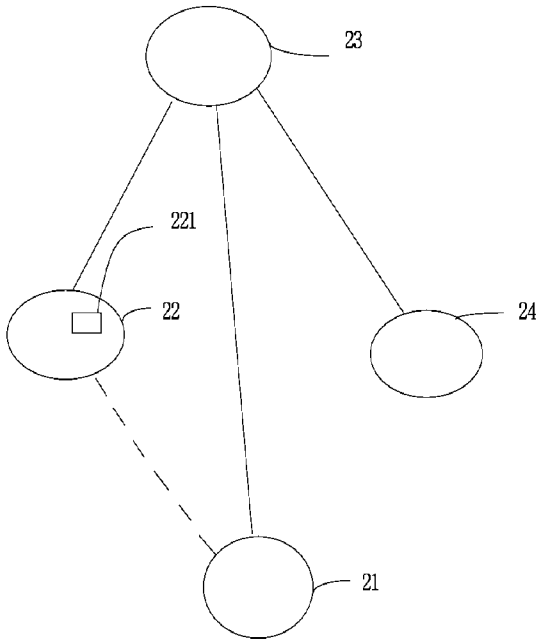
from the buyer's mobile phone if the call connection is established;
requesting the buyer's mobile phone number information from a mobile communication company server and confirming the buyer's mobile phone number information;
displaying approval of using a service on the terminal;
determining whether the call connection between the management server and the buyer's mobile phone is released and counting time after transmitting approval of using the service also to the buyer's mobile phone through a short message service (SMS) if the call connection is released;
determining whether a call connection between the management server and the buyer's mobile phone is established and receiving a terminal identification from the buyer's mobile phone if the call connection is established;
calculating and displaying a fee for using the specific service product of the terminal based on the elapsed time of the corresponding terminal;
requesting the buyer's mobile phone number information from the mobile communication company server and confirming the buyer's mobile phone number information;
requesting payment on an amount corresponding to the fee for using the service from the mobile communication company server where data on money deposited in advance by a buyer is stored and instantly confirming approval of the payment on the amount corresponding to the fee for using the service from the mobile communication company server;
displaying completion of the payment for using the service on the terminal; and
determining whether the call connection between the management server and the buyer's mobile phone is released and sending a receipt to the buyer's mobile phone through an SMS if the call connection is released.

[7] The automatic selling system according to claim 1, 3, or 5, wherein the management server comprises a buyer telephone number information database and a product database.

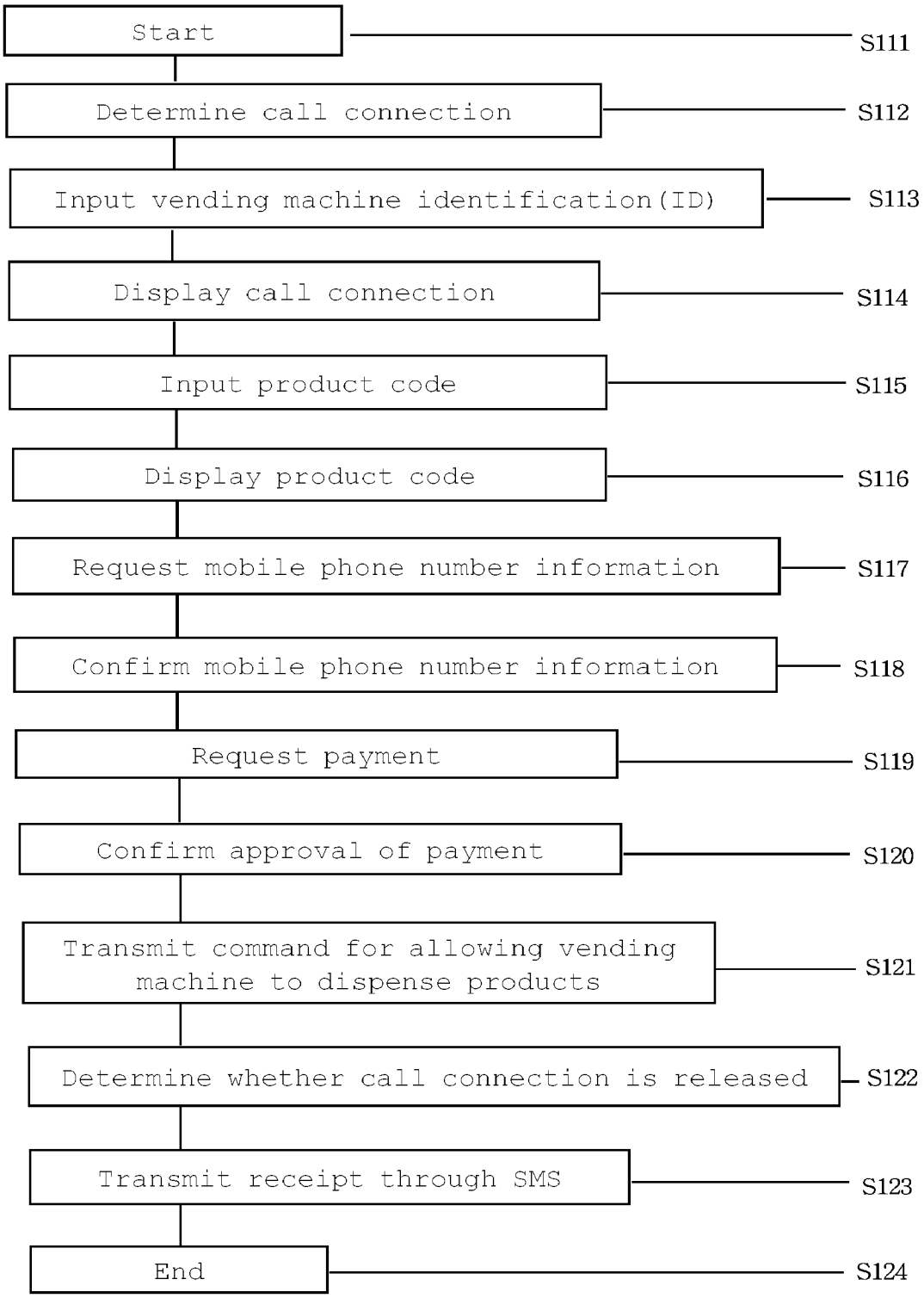
[Fig. 1]



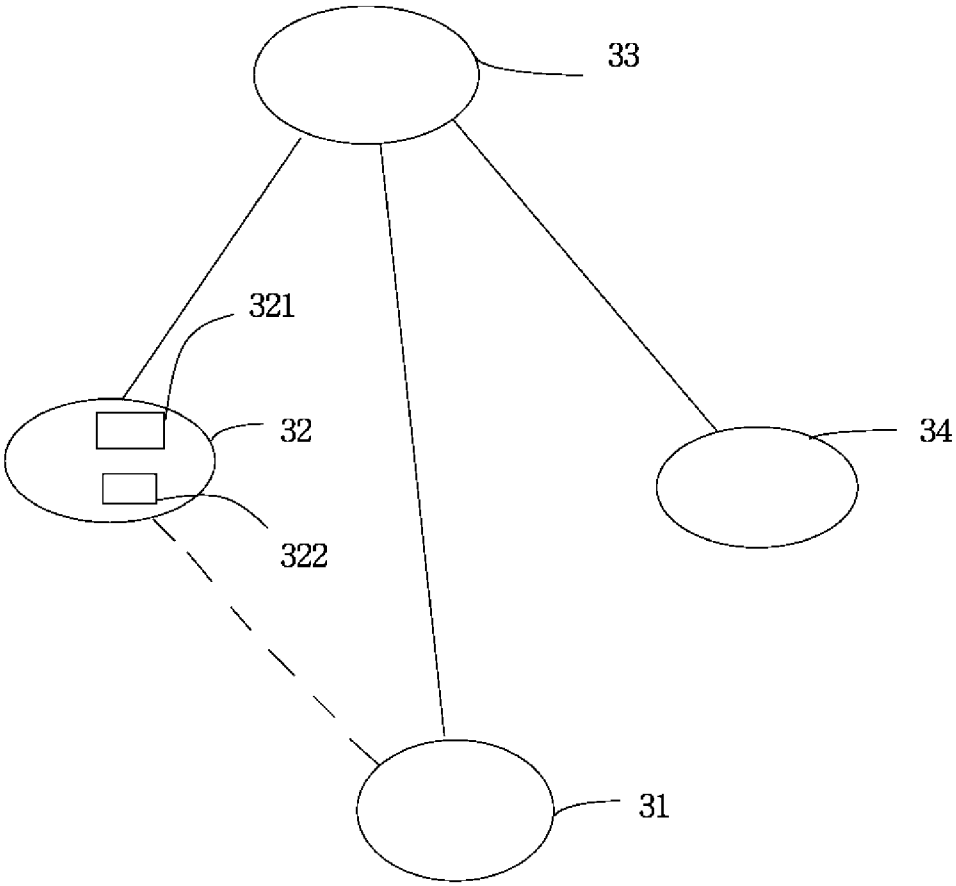

[Fig. 2]



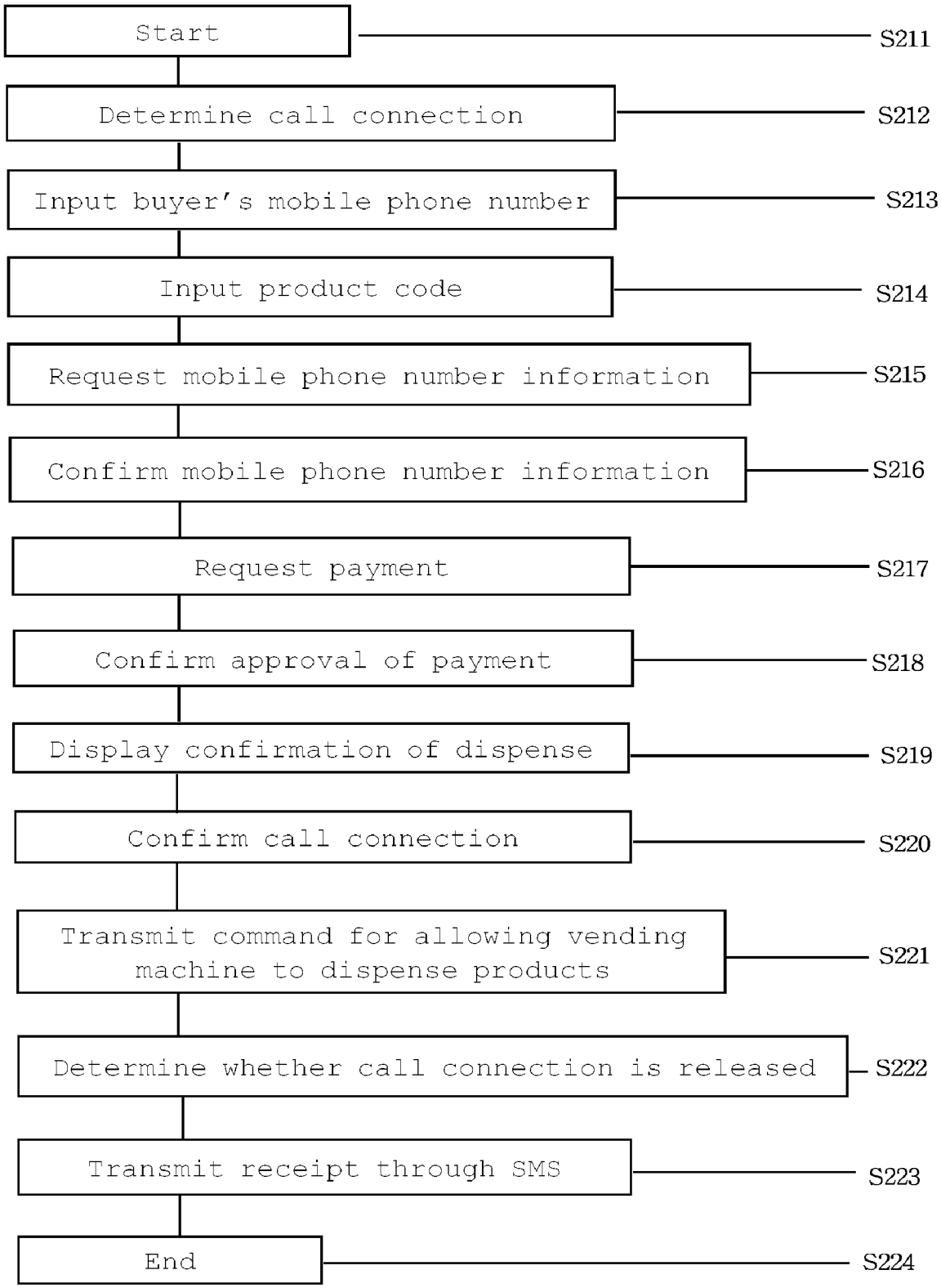
[Fig. 3]


Start
S111
Determine call connection
S112
Input vending machine identification(ID)
S113
Display call connection
S114
Input product code
S115
Display product code
S116
Request mobile phone number information
S117
Confirm mobile phone number information
S118
Request payment
S119
Confirm approval of payment
S120
Transmit command for allowing vending machine to dispense products
S121
Determine whether call connection is released
S122
Transmit receipt through SMS
S123
End
S124

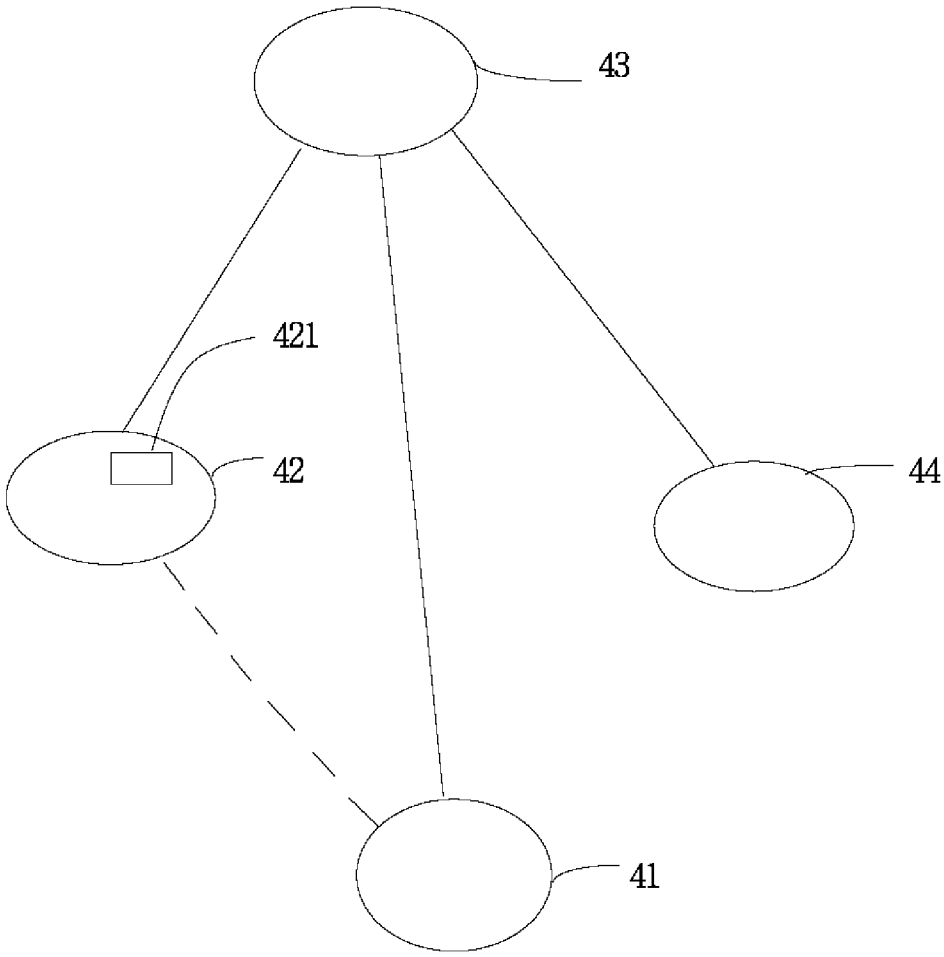
[Fig. 4]



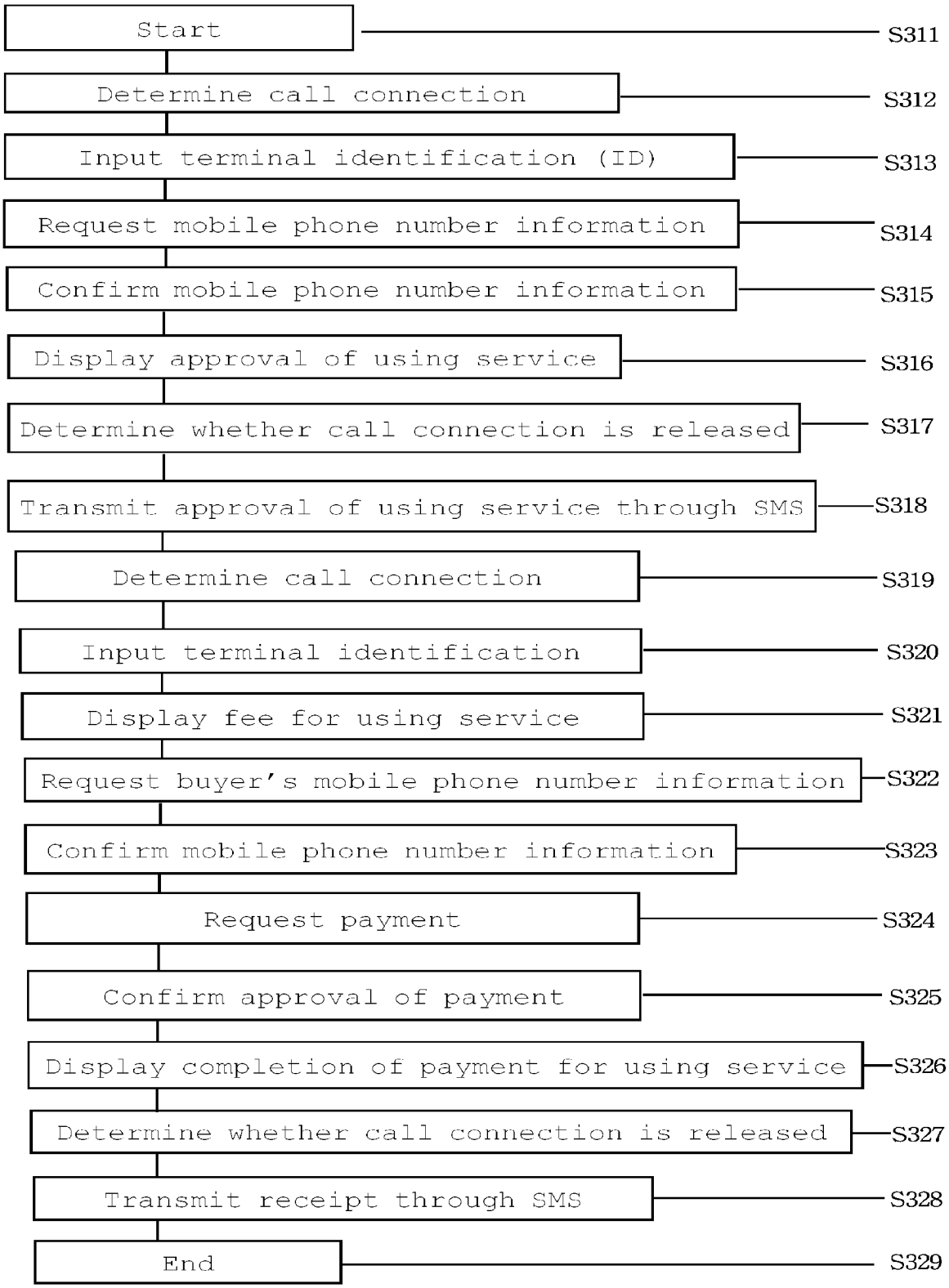
[Fig. 5]


Start
S211
Determine call connection
S212
Input buyer's mobile phone number
S213
Input product code
S214
Request mobile phone number information
S215
Confirm mobile phone number information
S216
Request payment
S217
Confirm approval of payment
S218
Display confirmation of dispense
S219
Confirm call connection
S220
Transmit command for allowing vending machine to dispense products
S221
Determine whether call connection is released
S222
Transmit receipt through SMS
S223
End
S224

[Fig. 6]



[Fig. 7]


Start
S311
Determine call connection
S312
Input terminal identification (ID)
S313
Request mobile phone number information
S314
Confirm mobile phone number information
S315
Display approval of using service
S316
Determine whether call connection is released
S317
Transmit approval of using service through SMS
S318
Determine call connection
S319
Input terminal identification
S320
Display fee for using service
S321
Request buyer's mobile phone number information
S322
Confirm mobile phone number information
S323
Request payment
S324
Confirm approval of payment
S325
Display completion of payment for using service
S326
Determine whether call connection is released
S327
Transmit receipt through SMS
S328
End
S329

**INTERNATIONAL SEARCH REPORT**

International application No.
PCT/KR2006/002965

**A. CLASSIFICATION OF SUBJECT MATTER**

*G06Q 30/00(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)
IPC8 G06F17/00, G06F19/00, G06Q10/00~99/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Patents and applications for inventions since 1975
Korean Utility models and applications for Utility models since 1975
Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PAJ, FPD, USPAT, eKIPASS(KIPO internal)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | KR 2002-82934 A (CARRIER-LG LIMITED) 01 November 2002<br>See claims 1, 3; Figure 3 | 1-7 |
| A | KR 2002-4251 A (PARK, JE HYURK) 16 January 2002<br>See claims 1, 2, 5, 9; Figure 5 | 1-7 |
| A | KR 2002-90763 A (LG ELECTRONICS INC.) 05 December 2002<br>See claims 1, 2 | 1-7 |
| A | KR 2004-5352 A (ITELBANK. INC.) 16 January 2004<br>See claims 1, 2, 7, 8; Figure 2 | 1-7 |

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 31 OCTOBER 2006 (31.10.2006) | **31 OCTOBER 2006 (31.10.2006)** |

| Name and mailing address of the ISA/KR | Authorized officer |
|---|---|
| Korean Intellectual Property Office<br>920 Dunsan-dong, Seo-gu, Daejeon 302-701,<br>Republic of Korea | PARK, Sung Woo |
| Facsimile No. 82-42-472-7140 | Telephone No. 82-42-481-5790 |

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.
PCT/KR2006/002965

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| KR 2002-82934 A | 01.11.2002 | None | |
| KR 2002-4251 A | 16.01.2002 | None | |
| KR 2002-90763 A | 05.12.2002 | None | |
| KR 2004-5352 A | 16.01.2004 | None | |