MERCHANDISE REGISTRATION APPARATUS AND PROGRAM

CROSS-REFERENCE TO RELATED APPLICATION

This application is based upon and claims the benefit of priority from Japanese Patent Application No. 2015-251366; filed December 24, 2015; the entire contents of which are incorporated herein by reference.

FIELD

Embodiments described herein relate generally to a merchandise registration apparatus and a program.

BACKGROUND

When merchandise is purchased, a merchandise registration apparatus of the related art alerts a shopper of a payment amount after merchandise per one purchase is registered, and thereafter, a payment method is determined. Here, when paying a prepaid method is made by using a payment method with a payment amount limit, such as an electronic money card, or a debit card, for example, if the payment amount limit is deficient based on electronic money balance, bank account balance, or the like, there is a need to pay for the deficiency in cash or the like. Accordingly, in payment which uses the merchandise registration apparatus of the related art, a shopper may not know that the payment amount limit is deficient, until the merchandise of the amount of one transaction is registered and determination of the payment method is completed. In this case, there is a problem that it takes time to pay because the shopper prepares cash or the like for paying for the deficiency after the merchandise of the amount of one transaction is registered.

Due to this situation, it is preferable that the shopper is alerted that a payment amount limit is deficient before the merchandise of the amount of one transaction is registered.

An example of related art includes JP-A-2015-018482.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view illustrating appearance of a merchandise registration apparatus according to an embodiment.

FIG. 2 is a block diagram illustrating a main circuit configuration of the merchandise registration apparatus.

FIG. 3 is a flowchart of control processing of a CPU in FIG. 2.

FIG. 4 is a diagram illustrating an example of an image that is displayed on a screen of a touch panel in FIG. 1 and FIG. 2.

FIG. 5 is a diagram illustrating an example of an image that is displayed on the screen of the touch panel in FIG. 1 and FIG. 2.

FIG. 6 is a diagram illustrating an example of an image which is displayed on a screen of a customer-side display device in FIG. 1 and FIG.2.

DETAILED DESCRIPTION

[0004]Embodiments provide a merchandise registration apparatus and a program which can alert a shopper that a payment amount limit of a payment method is deficient before merchandise of the amount of one transaction is registered.

[0005]In general, according to one embodiment, a merchandise registration apparatus includes a registering unit, an acquisition unit, and an alert unit. The registering unit registers merchandise which is a payment target. The acquisition unit acquires a payment amount limit of a payment method which is used for paying for the target merchandise. The alert unit performs an alert operation of alerting a payer that the payment amount limit is deficient, if it is determined that, before registering of the amount of one transaction is completed by the registering unit, the payment amount limit which is obtained by the acquisition unit is less than a payment amount for paying for merchandise that is previously registered as a payment target.

[0007]Hereinafter, a merchandise registration apparatus according to an embodiment will be described with reference to the drawings. The same symbols or reference numerals will be attached to the same elements in the following drawings and description thereof.

[0008]FIG. 1 is a perspective view illustrating appearance of a merchandise registration apparatus 1 according to an embodiment.

The merchandise registration apparatus 1 is connected to a reader/writer 2.

The merchandise registration apparatus 1 performs various types of data processing related to merchandise sales, such as registration of merchandise that is a payment target and calculation of a payment amount. For example, a point of sales (POS) terminal, an electronic cash register (ECR), or the like can be used as the merchandise registration apparatus 1. The merchandise registration apparatus 1 includes a main body 10, a touch panel 11, a customer-side display device 12, an input device 13, a printer 14, and a scanner 15.

[0009]The main body 10 includes various elements which configure the merchandise registration apparatus 1 and will be described below.

[0010]The touch panel 11 functions as a display device which displays a screen for notifying a manipulator of various types of information. In addition, the touch panel 11 functions as an input device which receives a touch manipulation of the manipulator.

The customer-side display device 12 displays various types of information for a shopper to confirm.

[0011]The input device 13 receives various types of information according to a manipulation of a manipulator. A keyboard, a keypad, buttons, or the like can be used as the input device 13.

The printer 14 prints a receipt or the like. The printer 14 can use various types of printer, such as, a dot impact printer, an inkjet printer, a thermal printer, a laser printer, or other printers.

The scanner 15 reads a barcode marked on one piece of merchandise, and outputs a merchandise code that the barcode indicates. In FIG. 1, the scanner 15 is used by hand, but may be fixed to a cash register table.

[0012]The reader/writer 2 reads information recorded on a card or the like for using a payment method with a payment amount limit, such as, a debit card, an electronic money card, or a point card. In addition, the reader/writer 2 can write information to the card or the like.

[0013]Hereinafter, the payment method with the payment amount limit will be described.

According to the debit card, bank account balance or the like becomes a payment amount limit. Alternatively, if a debit card user or a service provider of the debit card sets an upper limit of the amount of money which can be paid by the debit card, whichever of the account balance and the upper limit of the amount of money has a smaller value becomes the payment amount limit.

In addition, according to the electronic money card, electronic money balance becomes the payment amount limit.

In addition, according to the point card, a value which is obtained by converting point balance into the amount of money becomes the payment amount limit.

The payment amount limit is recorded in at least one of a server, a card for using the payment method, or the like.

[0014]A medium which stores information for using the payment method may be any one of a magnetic card, a contact type integrated circuit (IC) card, or a non-contact IC card. In addition, the medium is not limited to the card type medium, and a non-contact IC chip mounted in a portable electronic device such as a smart phone or a mobile phone may be used as a medium which stores the information.

The reader/writer 2 illustrated in FIG. 1 reads or writes information from or to a non-contact IC card or a non-contact IC chip. The reader/writer 2 can also read or write information from or to a magnetic card, a contact type IC card, or the like. That is, a type of reader/writer which reads or writes information from or to a medium that stores information for using a payment method is used as the reader/writer 2.

[0015]FIG. 2 is a block diagram illustrating a main circuit configuration of the merchandise registration apparatus 1.

The main body 10 includes a central processing unit (CPU) 101, a main memory 102, an auxiliary memory device 103, a communication interface 104, a network interface 105, and a bus 106.

[0016]The CPU 101 corresponds to a central part of a computer which performs processing and control necessary for an operation of the merchandise registration apparatus 1. The CPU 101 controls each unit so as to realize various functions of the merchandise registration apparatus 1, based on programs such as an operating system, application software, and the like which are stored in the main memory 102. Furthermore, the CPU 101 can also control the reader/writer 2 through the communication interface 104.

[0017]The main memory 102 corresponds to a main memory part of the computer. The main memory 102 stores the programs such as the operating system, the application software, and the like. The main memory 102 stores data which is referred to while the CPU 101 performs various types of processing. Furthermore, the main memory 102 stores data which is temporarily used and is used as a work area, while the CPU 101 performs various types of processing.

[0018]The auxiliary memory device 103 corresponds to an auxiliary memory part of the computer. The auxiliary memory device 103 is, for example, an electric erasable programmable read-only memory (EEPROM), a hard disc drive (HDD), a solid state drive (SSD), or the like. The auxiliary memory device 103 stores data which is used while the CPU 101 performs various types of processing, data which is generated by processing of the CPU 101, or the like. The auxiliary memory device 103 can also store the program such as the operating system, the application software, or the like.

In addition, the main memory 102 or the auxiliary memory device 103 also stores a merchandise list which is a list of merchandise registered as purchasing merchandise.

[0019]The program which is stored in the main memory 102 or the auxiliary memory device 103 includes a control program that is described about control processing which will be described below. As an example, the merchandise registration apparatus 1 transfers a control program to a user, in a state where the control program is stored in the main memory 102 or the auxiliary memory device 103. However, the merchandise registration apparatus 1 may transfer the control program to the user, in a state where the control program is not stored in the main memory 102 or the auxiliary memory device 103. In addition, the control program which is separately transferred to the user may be written to the main memory 102 or the auxiliary memory device 103 according to a manipulation of the user, a service man, or the like. At this time, the control program which is transferred can be recorded in a removable storage medium, such as a magnetic disc, a magneto-optical disc, an optical disc, or a semiconductor memory, or transferring of the control program can be realized by downloading the program through a network.

[0020]The communication interface 104 is an interface by which the merchandise registration apparatus 1 communicates with the reader/writer 2. The communication interface 104 uses, for example, RS-232C, a universal serial bus (USB), a small computer system interface (SCSI), IEEE 1394, Ethernet (registered trademark), or other interface standards.

The network interface 105 is an interface by which the merchandise registration apparatus 1 communicates with other units through a network 3.

The bus 106 includes an address, a data bus, or the like, and is a transfer path through which each unit of the merchandise registration apparatus 1 exchanges signals.

[0021]The network 3 is a communication network which includes a mobile telephone network such as third generation (3G) or long term evolution (LTE), Internet, a local area network (LAN), a dedicated line, or other communication lines, or the like.

[0022]A server 4 is connected to the merchandise registration apparatus 1 through the network 3. The server 4 can store account balance the payment method, the payment amount limit, or the like. A server having a known configuration can be used as the server 4.

[0023]Hereinafter, an operation of the merchandise registration apparatus 1 which is performed when a shopper purchases merchandise will be described with reference to the drawings. Content of processing which will be described below is an example, and various types of processing which can obtain the same results can be appropriately used.

[0024]FIG. 3 is a flowchart of control processing of the CPU 101. The CPU 101 executes control processing thereof, based on a control program stored in the main memory 102 or the auxiliary memory device 103.

[0025]In Act 1, the CPU 101 resets a merchandise list stored in the main memory 102 or the auxiliary memory device 103. That is, the CPU 101 commands the main memory 102 or the auxiliary memory device 103 to make a state where merchandise is not registered in the merchandise list.

[0026]In Act 2, the CPU 101 confirms whether or not a merchandise code is read. That is, the CPU 101 confirms whether or not a barcode attached to the merchandise is read by the scanner 15. If the merchandise code is not read, the CPU 101 determines that the answer is No in Act 2, and proceeds to Act 3.

[0027]In Act 3, the CPU 101 determines whether or not using a payment method with a payment amount limit for payment is determined. That is, the CPU 101 confirms whether or not a card or the like for using the payment method with the payment amount limit is read by the reader/writer 2. If using the payment method with the payment amount limit for payment is not determined, the CPU 101 determines that the answer is No in Act 3, and proceeds to Act 4.

[0028]In Act 4, the CPU 101 confirms whether or not a manipulation of commanding registration completion is performed. That is, the CPU 101 confirms whether or not a predetermined manipulation for commanding the registration completion such as pressing of a subtotal button or the like is performed. The CPU makes it a rule of a manipulation to perform the manipulation of commanding the registration completion after one or more merchandise are registered. If the manipulation of commanding the registration completion is performed in a state where the merchandise is not registered, the CPU 101 may be determined by a designer who designs a control program of the CPU 101. For example, the CPU 101 ignores the manipulation of commanding the registration completion. Alternatively, the CPU 101 may make the manipulation of commanding the registration completion be unable to be performed, in a state where the merchandise is not registered. If the manipulation of commanding the registration completion is not performed, the CPU 101 determines that the answer is No in Act 4, and returns to Act 2. Hence, the CPU 101 determines whether the merchandise code is read or the payment method with the payment amount limit is used for the payment, or repeats Act 2 to Act 4 until the manipulation of commanding the registration completion is performed.

[0029]If the merchandise code is read by the scanner 15 when being in a standby state of Act 2 to Act 4, the CPU 101 determines that the answer is Yes in Act 2, and proceeds to Act 5.

In Act 5, the CPU 101 registers the read merchandise code in the merchandise list. That is, the CPU 101 commands the main memory 102 or the auxiliary memory device 103 to add the read merchandise code to the merchandise list. In this processing, the CPU 101 operates as a registration unit.

In addition, in Act 5, the CPU 101 displays a list of merchandise registered in the merchandise list on the touch panel 11. That is, the CPU 101 generates an image corresponding to a merchandise registration screen 200, and commands the touch panel 11 to display the image.

When the merchandise registration screen 200 is displayed on the touch panel 11, if the merchandise code is registered in the merchandise list, the merchandise registration screen 200 is updated to a display according to the merchandise list in which the merchandise code is registered. That is, the CPU 101 generates an image corresponding to the updated merchandise registration screen 200, and commands the touch panel 11 to display the image.

[0030]FIG. 4 is a diagram illustrating the merchandise registration screen 200 as an example.

The merchandise registration screen 200 illustrated in FIG. 4 includes a merchandise region 210 and a money amount region 220.

The merchandise region 210 displays merchandise names, unit prices, numbers, and the amount of money of the merchandise which are registered in the merchandise list. The merchandise region 210 may also display information on whether price of each piece of the merchandise includes tax or excludes tax, a merchandise code, or other merchandise.

[0031]The money amount region 220 displays subtotal amounts, sales tax amounts, and total money amounts of the merchandise which are registered in the merchandise list. Here, the subtotal amount is a total of the amount of merchandise registered in the merchandise list. In addition, the sales tax amount is a total of sales tax amount of the merchandise which is previously registered in the merchandise list. The total money amount corresponds to a payment amount for paying for the merchandise which is previously registered in the merchandise list.

[0032]In addition, the CPU 101 returns to the standby state of Act 2 to Act 4, after ending processing of Act 5.

Hence, the CPU 101 registers the merchandise code in the merchandise list each time the merchandise code is read, until the payment method is determined or the manipulation of commanding the registration completion is performed.

[0033]When being in the standby state of Act 2 to Act 4, if the manipulation of commanding the registration completion in a state where one or more merchandise are registered, the CPU 101 determines that the answer is Yes in Act 4, and proceeds to Act 6.

In Act 6, the CPU 101 sets a shopper as a payer, and performs payment processing for the merchandise which is registered in the merchandise list. Here, a known processing can be used for the payment processing, description of the payment processing will be omitted.

In addition, in Act 6, the CPU 101 performs issue of a receipt or the like. That is, the CPU 101 commands the printer 14 to issue the receipt or the like.

The CPU 101 returns to Act 1 after ending the processing of Act 6.

[0034]When being in the standby state of Act 2 to Act 4, if using the payment method with the payment amount limit for the payment is determined, the CPU 101 determines that the answer is Yes in Act 3, and proceeds to Act 7.

In Act 7, the CPU 101 acquires the payment amount limit of the payment method. That is, if the payment amount limit of the payment method is acquired from the server 4, the CPU 101 commands the network interface 105 to transmit information for transmitting the payment amount limit to the server 4. In addition, the CPU 101 commands the network interface 105 to receive the payment amount limit which is transmitted from the server 4. The CPU 101 operates as an acquisition unit in the processing. In addition, if the payment amount limit of the payment method is acquired from a card or the like for using the payment method, the CPU 101 commands the reader/writer 2 to acquire the payment amount limit from the card or the like. The CPU 101 operates as an acquisition unit in the processing.

[0035]In Act 8, the CPU 101 determines whether or not the payment amount limit is deficient compared with a total money amount. That is, the CPU 101 calculates a total money amount from the amount of money of the merchandise which is registered in the merchandise list, and compares the calculated total money amount with the payment amount limit that is acquired in Act 7, and thus, determines whether or not the payment amount limit is deficient compared with the total money amount, that is, whether or not the payment amount limit is less than the total money amount. If the payment amount limit is more than or equal to the total money amount, the CPU 101 determines that the answer is No in Act 8, and proceeds to Act 9.

[0036]In Act 9, the CPU 101 confirms whether or not the merchandise code is read. That is, the CPU 101 confirms whether or not the barcode attached to the merchandise is read, in the same manner as in Act 2. If the merchandise code is not read, the CPU 101 determines that the answer is No in Act 9, and proceeds to Act 10.

[0037]In Act 10, the CPU 101 confirms whether or not a manipulation of commanding the registration completion is performed. That is, the CPU 101 confirms whether or not the manipulation of commanding the registration completion is performed, in the same manner as in Act 4. If the manipulation of commanding the registration completion is not performed, the CPU 101 determines that the answer is No in Act 10, and returns to Act 9. Hence, the CPU 101 repeats Act 9 and Act 10 until the merchandise code is read or the manipulation of commanding the registration completion is performed.

[0038]When being in the standby state of Act 9 and Act 10, if the merchandise code is read, the CPU 101 determines that the answer is Yes in Act 9, and proceeds to Act 11.

In Act 11, the CPU 101 registers the read merchandise code. That is, the CPU 101 adds the read merchandise code to the merchandise list, in the same manner as in Act 5. The CPU 101 operates as a registering unit in the processing.

In addition, the CPU 101 displays or updates the merchandise registration screen 200, according to the merchandise list at this point of time, in the same manner as in Act 5.

The CPU 101 returns to Act 8 after ending the processing Act 11. In this case, the CPU 101 calculates the total money amount anew, based on the merchandise list which is updated in Act 11, and compares the total money amount with the payment amount limit.

Hence, the CPU 101 registers the merchandise code in the merchandise list each time the merchandise code is read, until the total money amount exceeds the payment amount limit or the manipulation of commanding the registration completion is performed.

[0039]However, when being in the standby state of Act 9 and Act 10, if the manipulation of commanding the registration completion is performed in a state where one or more merchandise are registered, the CPU 101 determines that the answer is Yes in Act 10, and proceeds to Act 12.

In Act 12, the CPU 101 sets a shopper as a payer, and performs payment processing for the merchandise which is registered in the merchandise list. Here, in the payment processing, the CPU 101 performs payment by using the payment method which is determined in Act 3. A known method can be used for a specific payment processing, description thereof will be omitted.

In addition, in Act 12, the CPU 101 performs issue of a receipt or the like. That is, the CPU 101 commands the printer 14 to issue the receipt or the like.

The CPU 101 returns to Act 1 after ending the processing of Act 12.

[0040]If the payment amount limit is less than the total money amount, the CPU 101 determined that the answer is Yes in Act 8, and proceeds to Act 13.

In Act 13, the CPU 101 starts an alert operation for alerting a shopper that the payment amount limit is deficient compared with the total money amount. That is, the CPU 101 generates an image corresponding to a first notification screen, and commands the touch panel 11 to display the image. By performing the processing, a function as a first display unit is realized by cooperation of the CPU 101 and the touch panel 11. Furthermore, the CPU 101 commands the customer-side display device 12 to display a second alert screen 300. By performing this processing, a function as a second display unit is realized by cooperation of the CPU 101 and the customer-side display device 12.

[0041]FIG. 5 is a diagram illustrating a first alert screen 201 as an example.

The first alert screen 201 illustrated in FIG. 5 includes the merchandise registration screen 200, the merchandise region 210, and the money amount region 220. Furthermore, the first alert screen 201 includes an alert region 230 which is disposed to partially overlap the merchandise region 210 and the money amount region 220.

[0042]The alert region 230 includes deficiency notification 231, alert command 232, payment amount limit 233, deficient money amount 234, a confirmation button 235, and a change button 236.

[0043]The deficiency notification 231 is a character string for notifying a manipulator that the payment amount limit is deficient compared with the total money amount. For example, displaying is made like “payment amount limit is deficient.”

The notification command 232 is a character string for notifying a manipulator such that a shopper is alerted that the payment amount limit is deficient compared with the total money amount. For example, displaying is made like “please alert customer.”

The payment amount limit 233 displays a payment amount limit of a payment method. In FIG. 5, a case where the payment amount limit is 1,068 yen is shown.

The deficient money amount 234 displays how much the payment amount limit is deficient compared with the total money amount. FIG. 5 is a case where an deficient money amount is 120 yen.

[0044]The confirmation button 235 is for a manipulation of the manipulator, when the manipulator confirms content displayed in the alert region 230.

The change button 236 is for the manipulation of the manipulator, when determination of a payment method being used for payment is cancelled and the payment method is changed to another payment method.

[0045]The manipulator is urged by displaying of the alert region 230 described above, such that the shopper is alerted that the payment amount limit is deficient compared with the total money amount. That is, it is said that directly, displaying of the alert region 230 is for alerting the manipulator, but indirectly, the displaying is for alerting a shopper. Hence, displaying of the alert region 230 is an example of an alerting operation for alerting the shopper that the payment amount limit is deficient compared with the total money amount.

[0046]FIG. 6 is a diagram illustrating the second alert screen 300 as an example.

The second alert screen 300 illustrated in FIG. 6 includes the second alert screen 300, deficiency alert 301, payment amount limit 302, total money amount 303, and deficient money amount 304.

[0047]The deficiency alert 301, the payment amount limit 302, and the deficient money amount 304 show the same contents as the deficiency notification 231, the payment amount limit 233, and the deficient money amount 234.

The total money amount 303 displays a total money amount of the merchandise which is previously registered in the merchandise list at this point of time. FIG. 6 illustrates a case where the total money amount is 1,188 yen.

[0048]Hence, in processing of Act 8 and Act 13, the CPU 101, the touch panel 11, and the customer-side display device 12 operate as an alert unit. In addition, the CPU 101 operates as an alert control unit. In addition, the touch panel 11 and the customer-side display device 12 operate as an alert device.

[0049]In Act 14, the CPU 101 confirms whether or not a predetermined manipulation of indicating that the alert operation is confirmed is performed. If the confirmation button 235 is not manipulated, the CPU 101 determines that the answer is No in Act 14, and proceeds to Act 15.

[0050]In Act 15, the CPU 101 confirms whether or not a predetermined manipulation of cancelling payment of a payment method and changing the payment method to another payment method is performed. If the change button 236 is not manipulated, the CPU 101 determines that the answer is No in Act 15, and returns to Act 14.

Hence, the CPU 101 repeats Act 15 and Act 16 until the confirmation button 235 and the change button 236 are manipulated.

[0051]If the change button 236 is manipulated when being in the standby state of Act 14 and Act 15, the CPU 101 determines that the answer is Yes in Act 15, and returns to Act 2. At this time, the CPU 101 performs processing of cancelling determination of the payment method which is used for payment and ending the alert operation, and then returns to Act 2. In the processing of ending the alert operation herein, the CPU 101 commands the touch panel 11 to end display of the alert region 230, and commands the customer-side display device 12 to end display of the second alert screen 300. In this case, the CPU 101 returns to the standby state of Act 2 to Act 4, and thus, being able to change the payment method to other payment methods with other payment amount limits in Act 3. Hence, the CPU 101 operates as a change unit in the processing of Act 15 and Act 3.

[0052]If the confirmation button 235 is manipulated when being in the standby state of Act 14 and Act 15, the CPU 101 determines that the answer is Yes in Act 14, and proceeds to Act 16.

In Act 16, the CPU 101 ends the alert operation. That is, the CPU 101 commands the touch panel 11 to end display of the alert region 230.

[0053]In Act 17, the CPU 101 confirms whether or not the merchandise code is read, in the same manner as in Act 2. If the merchandise code is not read, the CPU 101 determines that the answer is No in Act 17, and proceeds to Act 18.

In Act 18, the CPU 101 confirms whether or not a manipulation of commanding the registration completion is performed, in the same manner as in Act 4. If the manipulation of commanding the registration completion is not performed, the CPU 101 determines that the answer is No in Act 18, and returns to Act 17. Hence, the CPU 101 repeats Act 17 and Act 18 until the merchandise code is read or the manipulation of commanding the registration completion is performed.

[0054]if the merchandise code is read when being in the standby state of Act 17 and Act 18, the CPU 101 determines that the answer is Yes in Act 17, and proceeds to Act 19.

In Act 19, the CPU 101 registers the read merchandise code in the same manner as in Act 5. In this processing, the CPU 101 operates as a registering unit. In addition, the CPU 101 updates the merchandise registration screen 200 in the same manner as in Act 5. In addition, the CPU 101 changes display of the amount of money of the second alert screen 300 to the amount of money according to the merchandise which is previously registered in the merchandise list. That is, the CPU 101 generates an image according to the display, and commands the customer-side display device 12 to display the image.

After ending the processing of Act 19, the CPU 101 returns to Act 17.

Hence, the CPU 101 adds the merchandise code to the merchandise list each time the merchandise code is read, until the manipulation of commanding the registration completion is performed.

[0055]If the manipulation of commanding the registration completion is performed when being the standby state of Act 17 and Act 18, the CPU 101 determines that the answer is Yes in Act 18, proceeds to Act 20.

In Act 20, the CPU 101 sets a shopper as a payer, and performs payment processing of the merchandise which is registered in the merchandise list.

Here, since the payment amount limit is deficient compared with a payment amount only in the payment method determined in Act 3, payment processing is performed by adding the amount of deficiency in the payment processing.

Adding of the amount of deficiency can be made by using various payment methods, such as, cash payment, credit payment, debit payment, electronic money payment, and point payment.

In addition, if the payment method determined in Act 3 is a payment method which can raise a payment amount limit, the CPU 101 may perform the payment by raising the payment amount limit. For example, if an electronic money card is used as the payment method, the CPU 101 can raise the payment amount limit by commanding a read/writer to add electronic money to electronic money balance.

Since known processing can be used for the processing of payment of a case where each payment method described above is used and the processing of adding the electronic money to the electronic money balance, description of the processing will be omitted.

In addition, in Act 21, the CPU 101 performs issue of a receipt or the like. That is, the CPU 101 commands the printer 14 to issue the receipt or the like.

After ending the processing of Act 21, the CPU 101 returns to Act 1.

[0056]As described above, the merchandise registration apparatus 1 performs the alert operation for alerting the shopper that the payment amount limit is deficient compared with the total money amount, before registration of the merchandise of the amount of one transaction is completed. By the alert operation, the shopper can recognize that the payment amount limit of the payment method which is intended to be used is deficient compared with the payment amount, before the registration of the merchandise of the amount of one transaction is completed. Accordingly, the shopper can review whether to change the payment method or not, or can perform preparation for paying for the amount of deficiency, while the rest of the merchandise is registered. In addition, as the result, it is possible to end payment rapidly after the registration of the merchandise is completed. That is, the preparation for paying for the amount of deficiency is to prepare, for example, cash, or the like.

[0057]The merchandise registration apparatus 1 performs displaying in the touch panel 11 or the customer-side display device 12, as the alert operation. Accordingly, the manipulator or the shopper can confirm easily and visually that the payment amount limit is deficient compared with the total money amount.

If the payment amount limit of the payment method which is intended to be used is deficient compared with the total money amount, the merchandise registration apparatus 1 also changes the payment method which is used according to the manipulation of the manipulator. Accordingly, the shopper can change the payment method such that a payment method with a more payment amount limit is used.

[0058]Furthermore, the merchandise registration apparatus 1 can also alert how much the payment amount limit is deficient compared with the total money amount of the payment amount in the alert operation. Accordingly, since the shopper easily guesses deficient amount of money when paying money, the shopper can prepare cash or the like as preparation for paying for the amount of deficiency can be rapidly made.

[0059]The present embodiment can perform the following modifications.

[0060]The CPU 101 may perform the determination on whether or not the payment amount limit is deficient compared with the total money amount after the merchandise code is read and before the merchandise is registered in the merchandise list. In this case, if the payment amount limit is deficient compared with the amount of money which is obtained by adding a unit price of the merchandise which is identified by the merchandise code that is finally read to the total money amount of the merchandise which is previously registered in the merchandise list, alert to that effect is made. By doing so, it is possible to make alert to that effect before the payment amount limit becomes deficient compared with the total money amount.

[0061]The CPU 101 may also set such that the merchandise can be registered during the alert operation. That is, the CPU 101 performs standby of reading of the merchandise code in a standby state of Act 14 and Act 15, and registers the merchandise in the merchandise list by performing the same processing as in Act 2 and Act 5, if the merchandise code is read by the scanner 15.

[0062]The CPU 101 may cancel the merchandise which is previously registered, according to manipulation of a manipulator during the alert operation. In addition, the CPU 101 may cancel the merchandise which is previously registered according to the manipulation of the manipulator during the alert operation, and may register other merchandise instead of that.

[0063]In the aforementioned description, the alert region 230 is disposed to partially overlap the merchandise region 210 and the money amount region 220, but is not limited to this. For example, a part of the merchandise registration screen may be used as the alert region 230. In addition, displaying of the merchandise registration screen may be stopped and only the alert region 230 may be displayed in the touch panel 11. The CPU 101 generates an image according to the display, and commands the touch panel 11 to display the image.

[0064]The CPU 101 may perform raising of the payment amount limit at arbitrary timing according to request of a shopper. That is, the CPU 101 performs standby of command of raising of the payment amount limit in at least one standby state of the respective standby states of Act 2 to Act 4, Act 9, Act 10, Act 14, Act 15, Act 17, and Act 18. In addition, if there is no command, the CPU 101 raises the payment amount limit.

[0065]The payment amount limit and the deficient money amount may be displayed when the alert region 230 is displayed, and may be displayed within the merchandise registration screen all the time.

[0066]In the aforementioned description, the payment processing is performed by the merchandise registration apparatus 1, but a payment device which is externally attached to the merchandise registration apparatus 1 may perform the payment processing, based on command of the CPU 101. In addition, if the payment device can perform communication through the network 3, the payment device may acquire the payment amount limit of the payment method from the server 4, based on the command of the CPU 101.

[0067]In the aforementioned description, the reader/writer 2 is externally attached to the merchandise registration apparatus 1. The reader/writer 2 is not limited to this, and may be embedded in the merchandise registration apparatus 1.

[0068]The payment processing may be performed by a check-out device of a semi-self method. In this case, information on merchandise registered in a merchandise list, a payment amount, and the like are transmitted to the check-out device, and the check-out device performs payment processing. If the information which is read by the reader/writer 2 can be transmitted to the check-out device, the information may also be transmitted to the check-out device. If the information is unable to be transmitted, and if writing to a card or the like for using the payment method is needed, the check-out device performs reading and writing of information stored in the card or the like for using the payment method.

[0069]The merchandise registration apparatus may use a self method. In this case, a manipulator is a shopper.

While certain embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions. Indeed, the novel embodiments described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions and changes in the form of the embodiments described herein may be made without departing from the spirit of the inventions. The accompanying claims and their equivalents are intended to cover such forms or modifications as would fall within the scope and spirit of the inventions.

WHAT IS CLAIMED IS:

1. A merchandise registration apparatus comprising:

a registering unit for registering merchandise which is a payment target;

an acquisition unit for acquiring a payment amount limit of a payment method which is used for paying for the target merchandise; and

an alert unit for performing an alert operation of alerting a payer that the payment amount limit is deficient, if it is determined that, before registering of the amount of one transaction is completed by the registering unit, the payment amount limit which is obtained by the acquisition unit is less than a payment amount for paying for merchandise that is previously registered as a payment target.

2. The apparatus according to Claim 1, further comprising:

a change unit for changing a payment method which is used for paying for target merchandise to another payment method, if it is determined that, before registering of the amount of one transaction is completed by the registering unit, the payment amount limit which is obtained by the acquisition unit is less than a payment amount for paying for merchandise that is previously registered as a payment target.

3. The apparatus according to Claim 1 or 2, wherein the alert unit alerts a deficient amount of money in the payment amount limit.

4. The apparatus according to any one of Claims 1 to 3, wherein the alert unit includes at least one of a first display unit which performs display for urging a manipulator to alert the payer that the payment amount limit is deficient, and a second display unit which performs display for alerting the payer that the payment amount limit is deficient.

5. A program that causes a computer, which controls a merchandise registration apparatus including an alert device, to function as:

a registering unit for registering merchandise which is a payment target;

an acquisition unit for acquiring a payment amount limit of a payment method which is used for paying for the target merchandise; and

an alert unit for controlling the alert device such that an alert operation of alerting a payer that the payment amount limit is deficient is performed, if it is determined that, before registering of the amount of one transaction is completed by the registering unit, the payment amount limit which is obtained by the acquisition unit is less than a payment amount for paying for merchandise that is previously registered as a payment target.

ABSTRACT

According to one embodiment, a merchandise registration apparatus includes a registering unit, an acquisition unit, and an alert unit. The registering unit registers merchandise which is a payment target. The acquisition unit acquires a payment amount limit of a payment method which is used for paying for the target merchandise. The alert unit performs an alert operation of alerting a payer that the payment amount limit is deficient, if it is determined that, before registering of the amount of one transaction is completed by the registering unit, the payment amount limit which is obtained by the acquisition unit is less than a payment amount for paying for merchandise that is previously registered as a payment target.