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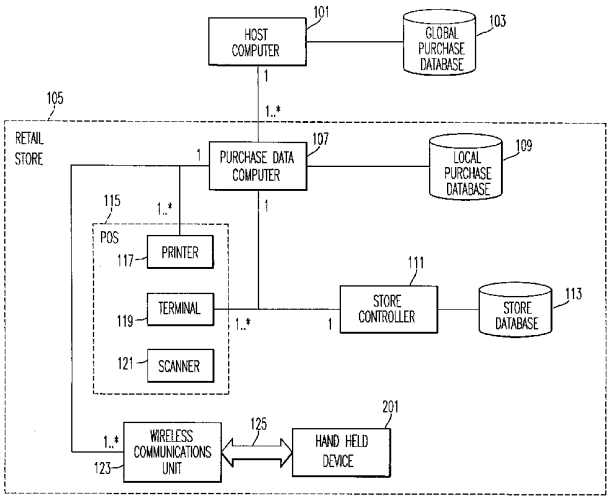
(54) Title: METHOD AND SYSTEM FOR USING A HAND HELD DEVICE FOR RECEIVING PROMOTIONS AND PRODUCT INFORMATION



(57) Abstract: A method, system, and computer product for using a hand held device for receiving promotions and product information. The method includes establishing a wireless communications link between a hand held device and a retail store system when the hand held device is located within a predetermined proximity of a retail store related to the retail store system. The retail store system generates a promotion relating to retail products offered by said retail store and delivers the promotion to the hand held device via the wireless communications link. The wireless communications link can be established either automatically or based on a signal initiated by a user of the hand held device. The hand held device may also transmit a customer identifier and/or a product identifier to the retail sore system and receive promotions generated based on the customer identifier and/or product identifier.

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METHOD AND SYSTEM FOR USING A HAND HELD DEVICE FOR RECEIVING PROMOTIONS AND PRODUCT INFORMATION

CROSS-REFERENCE TO RELATED PATENT DOCUMENTS

This application is related to application serial number 09/373,625, filed August 13, 1999; PCT/US99/24746, filed October 25, 1999; application serial number 09/323,538, filed June 1, 1999; PCT/US99/26002, filed November 16, 1999, and U.S. application entitled "METHOD AND SYSTEM FOR USING A HAND HELD DEVICE FOR MANAGEMENT OF PROMOTIONS" having attorney docket number 7701-0116-25, filed July 11, 2000, the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates generally to a method and system for using electronic hand held devices, and more specifically to a method and system for using an electronic hand held device for receiving promotions and retail product information. As used herein, the term "promotion" refers to any offer, advertisement, incentive, coupon, commercial, or communication for promoting one or more goods and/or services.

Discussion of the Background

As every grocery shopper knows, many manufacturers typically distribute promotions for their products either through the mail, by printing them in newspapers or magazines, by enclosing them in similar or related product packages, or by printing them from a point of sale terminal at a checkout counter in, for example, a grocery store. For many shoppers, time between shopping events is spent collecting these promotions. The collection of promotions are then brought to the retail store where the shopper matches each product purchased with a promotion in the collection to determine if the product is worth buying in view of the promotion. Due to the time consuming nature of this process however, many shoppers are unable or unwilling to collect and use promotions making the manufacturer's efforts to reward or expose the customer to new products ineffective. In addition, those shoppers who do collect promotions may not have access to all sources where promotions can be found and

therefore may not obtain a promotion for a product that the customer would be willing to buy. Moreover, these shoppers have an unnecessarily long shopping event due to the process of matching up each promotion in the collection with a product purchased.

The ubiquitous nature of the cellular phone is evidence of consumers' call for the convenience of wireless communications. Moreover, as technological improvements increase the bandwidth of wireless data connections, wireless networks promise to provide the ultimate connection to the Internet by letting users communicate anywhere, anytime. With such convenience, remote hand held data communications devices are likely to become as common as the cellular telephone and consumers are likely to use such hand held devices for a variety of tasks.

SUMMARY OF THE INVENTION

Accordingly, one object of this invention is to provide a method and system for receiving promotions in an easy and efficient manner.

Another object of the present invention is to provide a method and system for receiving promotions and retail information to a hand held device based on proximity to a retail store.

Yet another object of the present invention is to provide a method and system for receiving product information and promotions based on a signal initiated by the user of a hand held device.

These and other objects are achieved by providing a novel method, system, and computer program product for using a hand held device for receiving promotions and product information.

According to one aspect of the invention, a method, retail store system, and computer program product for delivering promotions and product information to a hand held device is provided. The method on which the retail store system and computer program product are based includes establishing a wireless communications link with the a hand held device located within a predetermined proximity of a retail store, generating a promotion relating to retail products offered by the retail store, and delivering the promotion to the hand held device via the wireless communications link. The wireless communications link can be established either automatically or based on a signal initiated by a user of the hand held

device. The retail store system may also receive a customer identifier and/or a product identifier from the hand held device and generate and transmit promotions based on the customer identifier and/or product identifier.

According to another aspect of the invention, a method, hand held device, and computer program product for receiving promotions and product information from a retail store system is provided. The method on which the hand held device and computer program product are based includes establishing a wireless communications link with a retail store system related to a retail store when within a predetermined proximity of the retail store, and receiving a promotion relating to retail products offered by the retail via the wireless communications link. The wireless communications link can be established either automatically or based on a signal initiated by a user of the hand held device. The hand held device may also transmit a customer identifier and/or a product identifier to the retail store system and receive promotions generated based on the customer identifier and/or product identifier.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the invention and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Figure 1 is a system for using a hand held device for receiving promotions and product information in accordance with an embodiment of the present invention;

Figure 2 is a block diagram of a hand held device used in accordance with an embodiment of the present invention;

Figure 3A is a standard promotions table for associating standard promotions of a retail store with a date of distribution in accordance with an embodiment of the present invention;

Figure 3B is a predetermined promotion table for associating a predetermined promotion with a CID in accordance with an embodiment of the present invention;

Figure 3C is a trigger item table for associating trigger items with targeted promotions

in accordance with an embodiment of the present invention;

Figure 3D is a store table for associating customer identifiers (CIDs) of a particular customer with a retail store in accordance with an embodiment of the present invention;

Figures 4A through 4C are exemplary promotions that may be displayed on the hand held device in accordance with an embodiment of the present invention;

Figure 5 is a flow chart describing the process for using a hand held device for receiving promotions in accordance with an embodiment of the present invention;

Figures 6A and 6B are flow charts describing the process for automatically establishing a wireless communications link between a retail store system and a hand held device in accordance with an embodiment of the present invention;

Figure 6C is a flow chart describing the process for establishing a wireless communications link between a retail store system and a hand held device based on a user initiated signal;

Figures 7 is a flow chart describing a process for determining promotions in the retail store system in accordance with an embodiment of the present invention;

Figure 8 is a schematic illustration of a computer system programmed to perform one or more of the special purpose functions of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, wherein like reference numerals designate identical or corresponding parts throughout the several views, and more particularly to Figure 1 thereof, there is shown a computerized system for using a hand held device for receiving promotions and product information according to an embodiment of the present invention. The system of Figure 1 includes a retail store system including host computer 101, a global purchase database 103, one or more retail stores 105, a purchase data computer 107, a local purchase database 109, a store controller 111, a store database 113, and one or more points of sale 115, each including a printer 117, a terminal 119, and a scanner 121.

The host computer 101 is any suitable workstation, server, or other device for communicating with the purchase data computer 107 and for storing information in and retrieving information from the global purchase database 103. The host computer 101 also determines promotions to be sent to customers in the retail store 105 in accordance with one

embodiment of the invention. The host computer 101 communicates with the purchase data computer 107 using any suitable protocol and may be implemented using the computer system 801 of Figure 8, for example.

The global purchase database 103 is a file that includes records containing information for providing promotions in accordance with the present invention. This information includes information of each purchase made by a customer in the retail store 105. Such information may include, but is not limited to the shelf keeping unit (SKU), brand, size, weight, price, date and time of purchase, and customer identifier (CID) of the customer making the purchase, for example. In one embodiment, portions of this information are obtained from bar codes on purchase items, which are scanned by the scanner 121 during a transaction. These bar codes may contain UPC, JAN, and EAN information. Records in the global purchase database 103 contain fields together with a set of operations for searching, sorting, recombining, and other database functions. The global purchase database 103 may be implemented as two or more databases, if desired. One or more of U.S. Pat. Nos. 5,832,457; 5,649,114; 5,430,644; and 5,592,560 describe techniques for collecting customer purchase history information and for storing such information in databases such as the global purchase database 103 and the store database 113, for example. U.S. Pat. Nos. 5,832,457; 5,649,144; 5,430,644; and 5,592,560 are incorporated herein by reference. Additionally, techniques for collecting customer purchase information and for storing such information in databases, such as the global purchase database 103 and the store database 113, are described in other patents owned by Catalina Marketing and/or Catalina Marketing International. Each patent owned by Catalina Marketing and/or Catalina Marketing International is incorporated herein by reference.

The retail store 105 is generically referred to as a retail location and is a place where goods are kept for retail sale to customers. As noted above, many retail stores 105 may be connected to the host computer 101.

The purchase data computer 107 may be implemented using the computer system 801 of Figure 8, for example, or any other suitable PC, work station, server, or device for communicating with the host computer 101, for storing and retrieving information in the local purchase database 109, for monitoring data transmitted between the terminal 119 and the store controller 111 (i.e., transaction data) and for controlling the printer 117 and wireless

communications unit 123. According to one embodiment, the purchase data computer 107 determines promotions and product information and delivers them to the hand held device 201 via the wireless communications unit 123.

The local purchase database 109 is a file that includes records containing information for providing promotions and product information in accordance with the present invention. The records in the local purchase database 109 contain fields for associating bar codes with products in the retail store 105 (e.g., by using UPC, JAN, and/or EAN codes) and associating customer identifiers with promotions. The local purchase database 109 also includes operations for searching, sorting, recombining, and other database functions. The local purchase database 109 may be implemented as two or more databases, if desired. Periodically, (e.g., daily) sales transaction information stored in the local purchase database 109 is retrieved by the purchase data computer 107 and sent to the host computer 101, which uses the information to update the purchase history information stored in the global purchase database 103.

The store controller 111 is any computer or device for communicating with the terminal 119 and for using information stored in the store database 113 to carry out transactions at the point of sale (POS) 115. A description of a store controller 111 is found in U.S. Patent No. 5,173,851, which is incorporated herein by reference.

The store database 113 is a file that includes records containing information for carrying out transactions at the point of sale 115 by scanning bar codes printed on purchased items. The records in the store database 113 contain fields for associating bar codes with products and their corresponding prices. The store database 113 also includes operations for searching, sorting, recombining, and other database functions, and may be implemented as two or more databases, if desired.

The retail store 105 includes one or more points of sale 115. Each point of sale 115 preferably includes a corresponding printer 117, a terminal 119, and a scanner 121. The terminal 119 may be implemented as a standard cash register and may include a screen, credit card reader, and numeric key pad, for example. The terminal 119 communicates with the store controller 111 and the scanner 121. The scanner 121 may be implemented as any conventional scanning device for reading product information such as an item code (e.g., UDC, EAN, or JAN) from bar codes or other indicia on the product. This information read

by the scanner 121 is transmitted to the store controller 111 via the terminal 119. The store controller 111, uses the scanned information and the information stored in the store database 113 to determine information of the transaction including product price, quantity, and product description, for example. Purchase receipts and a hard copy of promotions may be printed on the printer 117 in response to receiving commands from the purchase data computer 107, if desired.

If there are multiple points of sale 115 within the retail store 105, then each terminal 119 is preferably arranged on a loop with the store controller 111. The purchase data computer 107 is located in front of the store controller 111 on the loop so that information transmitted from the terminals to the store controller is monitored by the purchase data computer 107.

The retail store 105 also includes one or more wireless communications units 123 coupled to the purchase data computer 107. Each wireless communications unit 123 provides a two-way wireless data communication coupling 125 with hand held device 201. According to an embodiment of the present invention, wireless communications unit 123 is used to exchange data relating to promotions and retail product information with hand held device 201. Information is exchanged between the wireless communications unit 123 and hand held device 201 in response to receiving commands from the purchase data computer 107 and/or hand held device 201, for example.

Wireless communications unit 123 is a wireless transceiver such as an infrared transmitter and detector, or a Wireless Applications Protocol (WAP) device. Wireless communications unit 123 may also be a device for implementing Bluetooth radio link technology or some other IEEE 802 standard wireless protocol. Bluetooth is a technology specification for small form factor, low cost, short range radio links between mobile PCs, mobile phones, and other portable devices. See e.g., "Specification of the Blue Tooth System", V.1. 0B, December 1, 1999, core specification - vol. 1, profiles specification - vol. 2, the entire contents of which is incorporated herein by reference. Alternatively, the data transfer unit 123 may be implemented as any combination of suitable devices for providing wireless two-way data communication coupling 125 so as to provide compatibility with a variety of hand held devices. According to one embodiment, wireless communications unit 123 sends and receives electrical, electromagnetic or optical signals that carry digital data

streams representing various types of information related to promotions and product information.

Depending on the type of wireless technology used and the size and configuration of the retail store 105, there may be multiple wireless communications units 123 within the retail store 105. Each wireless communications unit 123 is preferably arranged relative to other wireless communications units in accordance with the range of transmission and reception of the wireless units. Each wireless communications unit 123 is connected to the purchase data computer 107 so that any of the databases of Figure 1 can exchange information with the hand held device 201. The wireless communications unit 123, the purchase data computer 107, and all components connected to the purchase data computer 107 make up a retail store system with which the hand held device 201 communicates with.

It is to be understood that the system in Figure 1 is for exemplary purposes only, as many variations of the specific hardware and software used to implement the present invention will be readily apparent to one having ordinary skill in the art. For example, the functionality of the purchase data computer 107 and the store controller 111 may be combined in a single device. This and other implementations of retail computer systems are described in greater detail in one or more of U.S. Pat. Nos. 4,723,212; 4,910,672; 5,173,851; 5,612,868; and 6,026,370, each of which is incorporated herein by reference. To implement these variations as well as other variations, a single computer (e.g., the computer system 801 of Figure 8) may be programmed to perform the special purpose functions of two or more of any of the devices numbered 101 through 123 shown in Figure 1. On the other hand, two or more programmed computers may be substituted for any one of the devices numbered 101 through 123 shown in Figure 1. Principles and advantages of distributed processing, such as redundancy and replication, may also be implemented as desired to increase the robustness and performance of the system, for example.

Figure 2 is a block diagram of an exemplary hand held device used according to the present invention. Figure 2 is intended to represent any one of a variety of small screen computers such as the hand held computer sold under the Trademark PalmPilot by Corporation of Santa Clara, California, the Trademark Palm by Palm, Inc. of Santa Clara, California, or the hand held computer disclosed in any one of U.S. Patent Numbers, 4,545,023, 5,133,076, and 5, 900,875, for example. U.S. Patent Numbers, 4,545,023,

5,133,076, and 5, 900,875 are incorporated herein by reference. Additionally, the hand held device 201 may be a personal data assistant (PDA), cellular phone, or any other portable hand held device capable of uploading, downloading, storing, and manipulating digital information.

Preferably, hand held device 201 includes a bus 203 or other communication mechanism for communicating information, and a processor 205 coupled with bus 203 for processing the information. Hand held device 201 also includes a memory unit 207, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), synchronous DRAM (SDRAM), flash RAM), coupled to bus 203 for storing information and instructions to be executed by processor 205. In addition, memory unit 207 may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by processor 205. Memory unit 207 may further include a read only memory (ROM) or other static storage device (e.g., programmable ROM (PROM), erasable PROM (EPROM), and electrically erasable PROM (EEPROM)) for storing static information and instructions for processor 205. The ROM may be depicted as a separate memory unit. A storage device 211, such as a magnetic disk, may also be provided coupled to bus 203 for storing information and instructions.

Hand held device 201 also includes a display unit 213, such as a liquid crystal display (LCD), coupled to bus 203 for displaying information to a user of hand held device 201. The hand held device 201 includes an input device 215, such as an alpha numeric keypad and/or cursor control, for communicating information and command selections to processor 205.

A wireless interface 217 coupled to bus 203 provides a two-way wireless data communication coupling 125 to wireless communications unit 123. Wireless interface 217 is a wireless transceiver such as an infrared transmitter and detector, or a Wireless Applications Protocol (WAP) device. Wireless interface 217 may also be a device for implementing Bluetooth radio link technology or some other IEEE 802 standard wireless protocol. Alternatively, the interface may be implemented as any combination of devices for providing two-way wireless data communication coupling 125 so as to provide compatibility with a variety of wireless communications units. In any such implementation, wireless interface 217 sends and receives electrical, electromagnetic or optical signals that carry digital data streams representing various types of information.

The present invention stores information relating to customer identifications, retail stores 105, the purchase histories of customers, and trigger items, for example. This information is stored in one or more memories such as a hard disk, optical disk, magneto-optical disk, and/or RAM, for example. One or more databases, such as the global purchase database 103 and the store database 113, may store the information used to implement the present invention. The databases are organized using data structures (e.g., records, tables, arrays, fields, graphs, trees, and/or lists) contained in one or more memories, such as the memories listed above or any of the storage devices listed below in the discussion of Figure 8, for example.

Figures 3A, 3B, 3C, and 3D depict data structures used for implementing a system for receiving promotions and product information in accordance with an embodiment of the present invention. The data structures are depicted in a relational format, using tables, whereby information stored in one column (i.e., field) of a table is mapped or linked to information stored in the same row (i.e., record) across the other column(s) of the table. These data structures are used by the host computer 101 and/or the purchase data computer 107 and/or the hand held device 201 to deliver promotions and product information in accordance with the present invention. According to one embodiment, the data structures shown in Figures 3A through 3C are stored in retail store system databases such as store database 113 or local purchase database 109, while the data structure shown in Figure 3D is stored in the hand held device 201. However, it is to be understood that any other suitable storage device(s) or medium(s) may be used.

Figure 3A is a standard promotions table 301 that includes a date field 303 for storing dates and a field 305 for storing standard promotions to be delivered to the hand held device 201 of a customer in accordance with the present invention. The standard promotions table is preferably stored in the local purchase database 109 on a regular basis, for example weekly, and associates standard promotions offered to all customers with a date on which the promotions are offered. According to one embodiment of the present invention, the information in field 305 is transmitted to any hand held device 201 that establishes a communications link with the wireless communications device 123 on the date in corresponding field 303 as will be described. The information in field 305 may be promotional information or any other information that is not specific to a particular product

or customer and is desired to be transmitted to every customer that is located within a predetermined proximity of the retail store 105 associated with the wireless communications unit 123. For example, the first entry of the standard promotions table 301 indicates the date July 4, 2000 in the date field 303 and the corresponding promotion of obtaining a gallon of milk for 5 cents if $25 is spent, and the general information that July 4th items are available at the bakery section. The promotions stored in the standard promotions table 301 may change on a daily basis as seen by the second exemplary entry of Figure 3A wherein the promotion of July 4th bakery items at half price is offered to all customers on July 5th.

Figure 3B is a predetermined promotion table 307 that includes a field 309 for storing CIDs and a field 311 for storing predetermined promotions associated with the CID. The predetermined promotion table 307 stores CIDs of many different customers and promotions associated with each CID. Thus, as seen in the exemplary entries of Figure 3B, the first entry in table 307 associates predetermined promotions with the customer having the CID 8765, while the second entry of table 307 associates predetermined promotions with a different customer having CID MMM765. The predetermined promotions in field 311 may be determined based on purchase history of the customer obtained by analysis of, for example, purchase data such as the location of the purchase, a description of the items purchased, the price of each item purchased, date and time of the transaction, and any other desired information of customers' transactions. The predetermined promotions table is preferably stored in the local purchase database 109.

Figure 3C is a trigger item table 313 including a field 315 for storing trigger items and a field 317 for storing promotions. The trigger items in field 315 may be bar codes or other information which, when sent from the hand held device 201 to the purchase data computer 107 and cause the purchase data computer 107 to deliver the corresponding promotion(s) in the field 317 to the hand held device 201 via the wireless communications unit 123. Thus, the trigger item table 313 associates trigger items with promotions to be delivered to a customer whose scans or otherwise inputs into the handheld device 201 and transmits to the wireless communications unit 123 one or more of the trigger items in the field 315. As shown by the phantom field 325 of Figure 3C, the promotion field 317 may contain a subfield 325 for providing product information relating to the corresponding trigger item in field 315. This product information may include nutritional information or any other information

specific to the product associated with the trigger item in field 315.

In a preferred embodiment, the retail products relating to the promotions stored in field 317 are complements of, in competition with, or in some way related to the trigger items stored in field 315. The first entry of Figure 3C illustrates an example of a promotion for a product in competition with a trigger product. In this example, "brand A cola" in field 315 is a purchase item that provides a trigger for a promotion of "50 cents off brand B cola" in field 317, brand B cola being in competition with brand A cola. Similarly, trigger item "brand T tea" in field 315 triggers a promotion for a "50 cents off 5 lb bag of sugar" in field 317, sugar being ordinarily used with tea and therefore a complement item of tea. Thus, if a customer scans both brand A cola and brand T tea using the hand held device 201 and transmits these items to the wireless communications unit 123, the purchase data computer will generate promotions for 50 cents off brand B cola and 50 cents off a 5lb bag of sugar which will be transmitted back to the hand held device 201 via wireless communications link 125. How the promotions in field 317 are provided in response to a trigger item in field 315 will be further described below.

Figure 3D is a retail store table 331 that includes a field 333 for storing customer identifiers (CIDs) and a field 335 for storing a particular retail store associated with the CID in the field 333. A CID is any identifier that is scanned, read, or otherwise entered into a computer system at checkout to identify a customer. Each customer may have multiple CIDs and each retail store may use any one of the CIDs to track purchases of, and provide promotions to, the customer. Thus, different retail stores may have a different CID for a particular customer. Examples of possible CIDs are credit card numbers, debit card numbers, social security card numbers, driver's license numbers, checking account numbers, street addresses, names, e-mail addresses, telephone numbers, frequent customer card numbers, shopper card identifications (SCIDs), or shopper loyalty card numbers issued by the retail store 105, although any other suitable form of identification may be used.

To illustrate the use of retail store table 331, Figure 3D includes three exemplary entries for a hypothetical customer having three customer loyalty accounts stored in hand held device 201. The first entry of Figure 3D shows that field 333 may contain the number "12345" as a CID associated with the hypothetical customer, and in the same record, field 335 may contain the entry "ABC grocery" as a corresponding retail store. The retail store

table 331 also includes the CID "8765" of the customer in field 333 and the corresponding entry (i.e. the entry in the same record) "XYZ market" in field 335 as shown by the second entry of Figure 3D. Alternatively, instead of the store name, the field 335 stores codes or identifying data of retail stores as shown in the third entry of Figure 3D. Thus, the retail store table 331 associates each of a number of CIDs assigned to the hypothetical customer with a corresponding retail store 105 thereby allowing the customer to use many different loyalty accounts with hand held device 201 in accordance with the present invention.

Figures 4A, 4B and 4C are examples of promotions that may be delivered to the hand held device 201 in accordance with the present invention. As shown in these figures, each purchase incentive includes a reward to be received by the customer, and may or may not include a loyalty condition to be satisfied by the customer in order to receive the reward. The loyalty condition indicates what a person must do to receive the reward. The reward may be a check, coupon, discount, certificate, redeemable medium, and/or other positive benefit to a person who meets the condition. For example, purchase incentive 401 of Figure 4A includes reward 403 (50¢ off brand B cola) which has no loyalty condition associated with it. A customer that makes a purchase of brand B cola at a retail store 105 that accepts the purchase incentive will receive a 50¢ discount without any further action. Figure 4B shows a purchase incentive 405 having a reward 407 and a loyalty condition 409. The reward of "one gallon of milk for 5 cents" is given to the customer only if the condition of spending $25 is satisfied.

The purchase incentives 401 is preferably a remarkable offer designed to cause a customer to switch to a particular brand of product or to promote brand loyalty for a product. In the case of causing a customer to switch brands, the purchase incentive is preferably triggered by the purchase of a competitor brand as discussed with respect to Figure 3C above. Purchase incentive 405 is a remarkable offer designed to keep customers coming back to the store 105. According to an embodiment of the invention, the rewards relating to store loyalty are for staple items such as milk, eggs, bread, etc. to encourage customers to do all of their grocery shopping at the store 105 rather than shop for specific items only. However, it is to be understood that each purchase incentive may be tailored to suit different purposes, as desired.

Figure 4C is an exemplary advertisement 411 that may be delivered to the hand held device 201 according to an embodiment of the present invention. The advertisement includes

a message 413 designated to promote a particular brand and product. Thus, as seen in Figure 4C, brand X sweetener is promoted to the consumer as being just one calorie.

The rewards, conditions, and advertisements shown in Figures 4A, 4B, and 4C may involve subject matter other than groceries and retail stores. Moreover, the promotions may include other information not shown in Figures 4A, 4B, and 4C and the other information may include information related or unrelated to the customer's purchases.

Figure 5 is a flowchart explaining the process of receiving promotions relating to retail products using a hand held device 201 in accordance with the present invention. The description of this figure is made by referring only to the purchase data computer 107 with the understanding that the host computer 101 may be used in combination with or as a substitute for the purchase data computer 107. In step 501, wireless communications link 125 is established between the retail store system including the purchase data computer 107 and wireless communications unit 123, and the hand held device 201. The wireless communications link 125 is established either automatically or in response to a user initiated command as will be discussed with respect to Figures 6A, 6B, and 6C. To establish the wireless communications link 125, the hand held device must be within a predetermined proximity of the wireless communications unit 123. The predetermined proximity is determined based on either the output power of the wireless communications unit 123 and hand held device 201, signal strength detection, or any other ranging technology known to one of ordinary skill in the art.

After the wireless communications link 125 is established, the purchase data computer 107 of the retail store system generates promotions to be delivered to the hand held device 201 in step 505. According to one embodiment of the present invention, the purchase data computer 107 generates standard promotions automatically when a hand held device 201 establishes a wireless communications link 125 with the retail store system. In generating the standard promotions, the purchase data computer 107 first determines the current date on which the wireless communications link 125 is established by reference to a system clock. The purchase data computer then accesses the standard promotions table 301 in the local purchase database 109 and retrieves the standard promotions in field 305 of table 301 corresponding to the date determined. According to another embodiment, the promotions generated in step 505 are determined based on a product identifier or CID transmitted from

the hand held device 201 to the wireless communications unit 123 of the retail store system as will be discussed in Figure 7.

Once the promotions are generated, the retail store system sends the promotions to the wireless communications unit 123 where the promotions are transmitted to the hand held device 201 via the wireless communications link 125 as seen in step 507. The promotions are then received and stored within the memory unit 207 or storage device 211 of the hand held device 201 where the customer may view the promotions on the display 213. The promotions may be viewed on display 213 individually as seen in Figures 4A, 4B, and 4C, for example, or viewed in tabular format allowing a user of the hand held device 201 to view several promotions at one time. Input device 215 allows a user of the hand held device to communicate command selections to the processor 205 via the bus 203, for selecting, deleting, grouping and otherwise organizing the promotions stored in memory of hand held device 201 as seen in step 509. For example, a customer using hand held device 201 may view all promotions, group the promotions to be retained, and delete the remaining promotions. With the retained promotions stored in hand held device 201, the customer shops for the retail items associated with the promotions retained in step 503 and or references and/or redeems the promotions with the retail store as also shown in Figure 509. The redeemable promotions may be redeemed by the customer by printing a hard copy of the promotion and presenting the hard copy to the retailer at checkout. Alternatively, the promotions may be electronically redeemed to the POS 115 at the checkout counter. Techniques for redeeming promotions using hand held device are described in Attorney docket number 7791-0116-25, titled "METHOD AND SYSTEM FOR USING A HAND HELD DEVICE TO MANAGE PROMOTIONS" assigned to CATALINA MARKETING INTERNATIONAL, INC. and filed on July 11, 2000, the entire contents of which is incorporated herein by reference.

Figures 6A and 6B describe alternative processes for automatically establishing wireless communications link 125 between the hand held device 201 and retail store system. As seen in the embodiment of Figure 6A, the retail store system transmits a survey signal within a predetermined proximity of the retail store 115 in step 601. The survey signal is a wireless signal transmitted from the wireless communications unit 123 and may be a simple beacon signal or a signal including information to be sent from the purchase data computer

107 or some other component of retail store system. As mentioned above, the predetermined proximity may be determined based on the output power of the wireless communications unit 123 or any known ranging technology.

When a customer brings a hand held device 201 within the predetermined proximity, the hand held device 201 receives the survey signal in step 603 via the wireless interface 217. The wireless interface 217 then sends a notification signal to the processor 205 of hand held device which then causes the wireless interface to transmit a reply to the retail store system indicating that a communications link is established as depicted in step 605. The reply transmitted from the hand held device 201 may be a simple reply signal or may include information to be used by the retail store system to generate promotions as will be discussed in Figure 7. Moreover, it is to be understood that the reply signal is of sufficient power to be received by the retail store system.

Figure 6B shows an alternative process for automatically establishing wireless communications link 125 between the retail store system and the hand held device 201. In step 607 of Figure 6B, the hand held device 201 continually transmits a proximity signal. The proximity signal may be a simple beacon signal or may include information to be used by the retail store system to generate promotions. The continual transmission of the proximity signal is preferably initiated by the user turning on power to the hand held device, or may be initiated by a command of the user. When the customer carrying the hand held device enters within a predetermined proximity of the retail store 115, the wireless communications unit 123 receives the proximity signal as seen in step 609. The wireless communications unit 123 then transmits a response of sufficient power to the hand held device 201 indicating that wireless communications link 125 has been established as in step 611. It is to be understood that when the proximity signal sent from the hand held device includes information to be used by the retail store system in generating promotions, the promotions are generated based on such information and are transmitted from the wireless communications unit 123 to the hand held device 201 as part of the response transmitted in step 611. Moreover, the processes described in Figures 6A and 6B are exemplary only, and any other known process for automatically establishing a wireless communications link 125 between the retail store system and the hand held device may be used.

Figure 6C describes the process by which wireless communications link 125 is

established based on a user initiated command. In step 613, the hand held device 201 inputs a command entered by the user of the hand held device 201. The command may be entered by depression of a function key on the hand held device or selection of an option on a menu displayed on the display 213 of the hand held device 201, for example. The command entered causes the hand held device to transmit a signal to the wireless communications unit 123 as seen in step 615. If the hand held device is within a predetermined proximity of the wireless communications unit 123, the retail store system receives the user initiated signal in step 617 and transmits a response indicating that a wireless link is established as shown in step 619. As with the automatic processes described above, the user initiated signal may include information used by the retail store system to determine promotions and the retail store systems response may include the promotion.

Figure 7 describes a process by which the retail store system generates promotions when the signal transmitted from the hand held device 201 to the retail store system includes information such as a CID or product identifier. As seen in step 701, the wireless communications unit 123 of the retail store system receives the CID and/or product identifier from the hand held device. The customer inputs a customer identifier and/or product identifier into the hand held device by scanning a card containing the CID, a product containing the product identifier, or manually inputting the CID and/or product identifier into the hand held device 201. When the wireless communications link is to be established automatically as discussed with respect to Figures 6A and 6B, the customer preferably inputs the product identifier and/or customer identifier into the hand held device 201 where it is stored in the memory unit 207 or storage device 211 to be accessed and transmitted during the process of automatically establish in a wireless communication link.

According to one embodiment of the present invention, when a wireless communications link is automatically established between the hand held device 201 and the wireless communications unit 123 as described in Figures 6A and 6B, the retail store table 331 containing CID information is transferred from the memory unit 207 through bus 203 and wireless interface 217 of the hand held device 201, and transmitted. The wireless communications unit 123 receives and transfers the retail store table 331 to the purchase data computer 107 which obtains a store identifier unique to the retail store 115 or retail chain that retail store 115 is affiliated with, from the local purchase database 109 or the store database

113. Purchase data computer 107 searches field 331 of retail store table 301, for a store identifier that matches the identifier obtained from database 109 or 113, and the corresponding CID in field 333 of table 301 is determined to be the CID of the customer for the particular retail store 115. For example, a customer shopping at ABC Grocery store and having table 331 of Figure 3D stored in hand held device 201 would interface hand held device 201 with a wireless communications unit 123 located in ABC Grocery store in order to transmit table 331 to the purchase data computer 107 located in ABC Grocery store. The purchase data computer 107 then obtains the identifier "ABC Grocery" from the local purchase database 109, for example, and matches this identifier with field 335 to determine the CID of the customer for ABC Grocery store.

Alternatively, when the wireless communications link 125 is established based on a user initiated command as described in Figure 6C above, the product identifier and/or CID is input into the hand held device 201 as part of inputting the user initiated command. For example, in a preferred embodiment, a customer shopping at retail store 105 uses the hand held device 201 to scan the product identifier of one of the products on a shelf of the retail store. This scanning serves as the user initiated command in step 613 and the user initiated signal transmitted in step 615 includes the product identifier. If the hand held device is within the predetermined proximity, the wireless communications unit 123 receives the proximity signal including the product identifier.

Whether the CID and/or product identifier are sent to the wireless communications unit 123 by an automatic or user initiated link, in step 703 the CID and/or product identifier are sent from the wireless communications unit 123 to the purchase data computer 107. The purchase data computer then determines promotions based on the CID and/or product identifier received as seen in step 705. The promotions determined are then sent to the wireless communications unit 123 to be sent to the hand held device 201 via the wireless communications link 125 where the promotions can be organized and redeemed as discussed with respect to Figure 5.

According to an embodiment, Figure 7's step 703 of determining promotions to be delivered to the customer's hand held device 201 is accomplished according to predetermined promotions obtained based on the customer's purchase history. In this embodiment, and referring to Figure 1, the host computer 101 polls the purchase data computer 107 in each of

the retail stores 105 for purchase history information to update the purchase history information stored in the global purchase database 103. The host computer 101 generates behavioral information from the purchase history information stored in the global purchase database 103. This behavioral information may be any information that a market researcher (i.e., surveyor) wishes to use to determine whether a targeted promotion should be delivered to a customer. Examples of behavioral information are whether a customer has purchased at least five pounds of dog food per month for the last year, whether the customer has purchased cold medicine in the last week, and whether the customer consistently purchases lactose-free milk.

The host computer 101 compares the behavioral information generated to purchase criteria stored in global purchase database 103 and associated with a particular promotion. If the behavioral information of any customer meets the purchase criteria, then the customer's CID is stored in field 309 and the corresponding promotion is stored in the field 311 of the predetermined promotion table 307. In this manner, the predetermined promotion table 307 is populated with CIDs and associated promotions to be delivered to the corresponding customers.

The host computer 101 delivers the predetermined promotion table 307 to the retail stores 105. If desired, predetermined promotion table 307 is broken up into separate predetermined promotion tables for each retail store 105. If desired, only the CIDs of customers that frequent the corresponding retail store 105 are provided to each retail store 105 in order to reduce the effect of storage and transmission constraints. The predetermined promotion table 307 is received by the purchase data computer 107 and the retail store 105 and stored in the local purchase database 109.

When a customer establishes a wireless communications link 125 between the hand held device 201 and the wireless communications unit 123, the customer CID table is transmitted through the wireless communications unit 123 to the purchase data computer 107 which determines the CID as discussed above. Once the CID is determined, the purchase data computer 107 uses the CID to determine whether the same CID exists in field 309 of the predetermined promotion table 307. If the CID is found in field 309, then the corresponding predetermined promotion(s) in field 311 are delivered to the wireless communications unit 123. The predetermined promotions are then transmitted over wireless communication link

125 to wireless interface 217 of hand held device 201. The predetermined promotions are transferred through bus 203 into memory unit 207 of hand held device 201 where the promotions may be reviewed and organized by the customer. In this manner, the promotions targeted to the customer whose CID was input to the hand held device are delivered to the customer's hand held device.

In another embodiment, Figure 7's step 703 of determining promotions to be delivered to the customer's hand held device 201 is accomplished according to trigger items scanned and transmitted by the customer during the shopping event. In this embodiment, the purchase data computer 107 receives trigger items and promotions, which are stored in the local purchase database 109. The trigger items and promotions may be downloaded from the host computer 101, input by hand, or transferred by any other suitable means to the purchase data computer 107 (e.g., by floppy disk or via a connection to another computer). The trigger items and promotions are stored in the trigger item table 313 in fields 315 and 317 respectively. The trigger items correspond to information scanned into the hand held device 201 during the current shopping event. For example, the triggers may be bar code information or UPC information associated with corresponding promotions 317. Thus, each trigger item may identify one or more products.

As discussed, the purchase data computer 107 monitors information received by the wireless communications unit 123. The information transmitted may be generated upon scanning a bar code on a product or by any other suitable method for inputting product identifier information into the hand held device. The purchase data computer 107 compares the monitored information with the trigger items stored in the field 315. If there is a match between any of the trigger items in the field 315 and the scanned information (e.g., if a product identified by the trigger item is scanned by the customer during the shopping event), then the purchase data computer 107 electronically transmits the corresponding promotion in the field 317 to the hand held device 201 via wireless communications unit 123, over wireless communication link 125 to interface 217 of hand held device 201. The promotions are transferred through bus 203 into memory unit 207 of hand held device 201 where the promotions may be reviewed and organized. In this manner, the promotions corresponding to trigger items of a current purchase transaction are delivered to the customer at the point of sale 115.

The promotions according to the present invention may be accompanied by additional information relating to the product scanned by the customer. For example, the promotions electronically transmitted from the wireless communication unit 123 as discussed above may be accompanied by product information such as nutritional content, for example, that a customer may consider in determining whether to purchase the product associated with the promotion. This embodiment may be implemented by storing the additional information in a additional associated subfield 325 of the field 317, for example.

Portions of the invention may be conveniently implemented using conventional general purpose computers or microprocessors programmed according to the teachings of the present invention, as will be apparent to those skilled in the computer art. Appropriate software can be readily prepared by programmers of ordinary skill based on the teachings of the present disclosure, as will be apparent to those skilled in the software art.

Figure 8 illustrates a computer system 801 upon which an embodiment according to the present invention may be implemented. Computer system 801 includes a bus 803 or other communication mechanism for communicating information, and a processor 805 coupled with bus 803 for processing the information. Computer system 801 also includes a main memory 807, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), synchronous DRAM (SDRAM), flash RAM), coupled to bus 803 for storing information and instructions to be executed by processor 805. In addition, main memory 807 may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by processor 805. Computer system 801 further includes a read only memory (ROM) 809 or other static storage device (e.g., programmable ROM (PROM), erasable PROM (EPROM), and electrically erasable PROM (EEPROM)) coupled to bus 803 for storing static information and instructions for processor 805. A storage device 811, such as a magnetic disk or optical disc, is provided and coupled to bus 803 for storing information and instructions.

The computer system 801 may also include special purpose logic devices (e.g., application specific integrated circuits (ASICs)) or configurable logic devices (e.g., generic array of logic (GAL) or reprogrammable field programmable gate arrays (FPGAs)). Other removable media devices (e.g., a compact disc, a tape, and a removable magneto-optical media) or fixed, high density media drives, may be added to the computer system 801 using

an appropriate device bus (e.g., a small computer system interface (SCSI) bus, an enhanced integrated device electronics (IDE) bus, or an ultra-direct memory access (DMA) bus). The computer system 801 may additionally include a compact disc reader, a compact disc reader-writer unit, or a compact disc juke box, each of which may be connected to the same device bus or another device bus.

Computer system 801 may be coupled via bus 803 to a display 813, such as a cathode ray tube (CRT), for displaying information to a computer user. The display 813 may be controlled by a display or graphics card. The computer system includes input devices, such as a keyboard 815 and a cursor control 817, for communicating information and command selections to processor 805. The cursor control 817, for example, is a mouse, a trackball, or cursor direction keys for communicating direction information and command selections to processor 805 and for controlling cursor movement on the display 813. In addition, a printer may provide printed listings of the data structures shown in Figures 3A, 3B, 3C and 3D, or any other data stored and/or generated by the computer system 801.

The computer system 801 performs a portion or all of the processing steps of the invention in response to processor 805 executing one or more sequences of one or more instructions contained in a memory, such as the main memory 807. Such instructions may be read into the main memory 807 from another computer-readable medium, such as storage device 811. One or more processors in a multi-processing arrangement may also be employed to execute the sequences of instructions contained in main memory 807. In alternative embodiments, hard-wired circuitry may be used in place of or in combination with software instructions. Thus, embodiments are not limited to any specific combination of hardware circuitry and software.

As stated above, the system 801 includes at least one computer readable medium or memory programmed according to the teachings of the invention and for containing data structures, tables, records, or other data described herein. Stored on any one or on a combination of computer readable media, the present invention includes software for controlling the computer system 801, for driving a device or devices for implementing the invention, and for enabling the computer system 801 to interact with a human user, e.g., a customer. Such software may include, but is not limited to, device drivers, operating systems, development tools, and applications software. Such computer readable media

further includes the computer program product of the present invention for performing all or a portion (if processing is distributed) of the processing performed in implementing the invention.

The computer code devices of the present invention may be any interpreted or executable code mechanism, including but not limited to scripts, interpreters, dynamic link libraries, Java classes, and complete executable programs. Moreover, parts of the processing of the present invention may be distributed for better performance, reliability, and/or cost.

The term "computer readable medium" as used herein refers to any medium that participates in providing instructions to processor 805 for execution. A computer readable medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media includes, for example, optical, magnetic disks, and magneto-optical disks, such as storage device 811. Volatile media includes dynamic memory, such as main memory 807. Transmission media includes coaxial cables, copper wire and fiber optics, including the wires that comprise bus 803. Transmission media may also take the form of acoustic or light waves, such as those generated during radio wave and infrared data communications.

Common forms of computer readable media include, for example, hard disks, floppy disks, tape, magneto-optical disks, PROMs (EPROM, EEPROM, Flash EPROM), DRAM, SRAM, SDRAM, or any other magnetic medium, compact disks (e.g., CD-ROM), or any other optical medium, punch cards, paper tape, or other physical medium with patterns of holes, a carrier wave (described below), or any other medium from which a computer can read.

Various forms of computer readable media may be involved in carrying out one or more sequences of one or more instructions to processor 805 for execution. For example, the instructions may initially be carried on a magnetic disk of a remote computer. The remote computer can load the instructions for implementing all or a portion of the present invention remotely into a dynamic memory and send the instructions over a telephone line using a modem. A modem local to computer system 801 may receive the data on the telephone line and use an infrared transmitter to convert the data to an infrared signal. An infrared detector coupled to bus 803 can receive the data carried in the infrared signal and place the data on bus 803. Bus 803 carries the data to main memory 807, from which processor 805 retrieves and

executes the instructions. The instructions received by main memory 807 may optionally be stored on storage device 811 either before or after execution by processor 805.

Computer system 801 also includes a communication interface 819 coupled to bus 803. Communication interface 819 provides a two-way data communication coupling to a network link 821 that is connected to a local network (e.g., LAN 823). For example, communication interface 819 may be a network interface card to attach to any packet switched local area network (LAN). As another example, communication interface 819 may be an asymmetrical digital subscriber line (ADSL) card, an integrated services digital network (ISDN) card or a modem to provide a data communication connection to a corresponding type of telephone line. Wireless links may also be implemented. In any such implementation, communication interface 819 sends and receives electrical, electromagnetic or optical signals that carry digital data streams representing various types of information.

Network link 821 typically provides data communication through one or more networks to other data devices. For example, network link 821 may provide a connection through LAN 823 to a host computer 825 or to data equipment operated by a service provider, which provides data communication services through an IP (Internet Protocol) network 827. LAN 823 and IP network 827 both use electrical, electromagnetic or optical signals that carry digital data streams. The signals through the various networks and the signals on network link 821 and through communication interface 819, which carry the digital data to and from computer system 801, are exemplary forms of carrier waves transporting the information. Computer system 801 can transmit notifications and receive data, including program code, through the network(s), network link 821 and communication interface 819.

Obviously, numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

CLAIMS:

1. A method comprising:

establishing a wireless communications link with a hand held device located within a predetermined proximity of a retail store;

generating a promotion relating to retail products offered by said retail store;

delivering said promotion to said hand held device via said wireless communications link.

2. The method of Claim 1, wherein said step of establishing a wireless communications link comprises automatically establishing the communications link with said hand held device when the hand held device is within the predetermined proximity.

3. The method of Claim 2, wherein said step of automatically establishing a communications link comprises:

continuously transmitting a survey signal to said predetermined proximity; and

receiving, when said hand held device enters said predetermined proximity, a proximity signal sent from said hand held device in response to said survey signal.

4. The method of Claim 2, wherein said step of automatically establishing a communications link comprises:

continuously monitoring said predetermined proximity for a proximity signal continuously transmitted by said hand held device; and

receiving said proximity signal when said hand held device enters said predetermined proximity.

5. The method of Claim 1, wherein said step of generating a promotion comprises:

receiving said promotion from a computer associated with said retail store via one of a local area network and a wide area network.

6. The method of Claim 2, further comprising:

receiving a customer identifier associated with a customer from said hand held device

via said wireless communications link; and

generating said promotion based on said customer identifier.

7. The method of Claim 6 wherein said step of generating a promotion based on said customer identifier comprises generating a promotion based on a recorded purchase history of said customer associated with said customer identifier.

8. The method of Claim 2, further comprising:

receiving a product identifier from said hand held device via said wireless communications link; and

generating said promotion based on said product identifier.

9. The method of Claim 8, wherein said step of generating a promotion based on said product identifier comprises generating said promotion based on a table which associates a promotion with a trigger item identified by said product identifier.

10. The method of Claim 1, wherein said step of establishing a wireless communications link comprises receiving a user initiated wireless signal from said hand held device when the hand held device is within said predetermined proximity of said retail store.

11. The method of Claim 10, wherein

said user initiated wireless signal comprises a customer identifier entered into and transmitted from said hand held device while said hand held device is within said predetermined proximity of said retail store, and

said promotion is generated based on said customer identifier.

12. The method of Claim 7, wherein

said user initiated wireless signal comprises a product identifier entered into and transmitted from said hand held device while said hand held device is within said predetermined proximity of said retail store, and

said promotion is generated based on said product identifier.

13. The method of Claim 12, further comprising transmitting product information relating to said product identifier to said hand held device along with said promotion.

14. The method of Claim 1, wherein said step of generating a promotion comprises automatically generating a standard promotion that is indiscriminately transmitted to all hand held devices for which a wireless communications link is established.

15. A computer readable medium containing program instructions for execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps in the method recited in any one of Claims 1-14.

16. A retail store system comprising:

a memory device having embodied therein, data related to promotions; and

a processor in communication with said memory, said processor configured to:

establish a wireless communications link with a hand held device located within a predetermined proximity of a retail store;

generate a promotion relating to retail products offered by said retail store; and

deliver said promotion to said hand held device via said wireless communications link.

17. The retail store system of Claim 16 wherein said processor is configured to automatically establish the communications link with said hand held device when the hand held device is within the predetermined proximity.

18. The retail store system of Claim 17, wherein said processor is configured to:

continuously transmit a survey signal to said predetermined proximity; and

receive, when said hand held device enters said predetermined proximity, a proximity signal sent from said hand held device in response to said survey signal.

19. The retail store system of Claim 17, wherein said processor is configured to:

continuously monitor said predetermined proximity for a proximity signal continuously transmitted by said hand held device; and

receive said proximity signal when said hand held device enters said predetermined proximity.

20. The retail store system of Claim 16, wherein said processor is configured to receive said promotion from a computer associated with said retail store via one of a local area network and a wide area network.

21. The retail store system of Claim 17, wherein said processor is configured to:

receive a customer identifier associated with a customer from said hand held device via said wireless communications link; and

generate said promotion based on said customer identifier.

22. The retail store system of Claim 21 wherein said processor is configured to generate a promotion based on a recorded purchase history of said customer associated with said customer identifier.

23. The retail store system of Claim 17, wherein said processor is configured to:

receive a product identifier from said hand held device via said wireless communications link; and

generate said promotion based on said product identifier.

24. The retail store system of Claim 23, wherein said processor is configured to generate said promotion based on a table which associates a promotion with a trigger item identified by said product identifier.

25. The retail store system of Claim 16, wherein said processor is configured to receive a user initiated signal from said hand held device when the hand held device is within said predetermined proximity of said retail store.

26. The retail store system of Claim 25, wherein

said user initiated wireless signal comprises a customer identifier entered into and transmitted from said hand held device while said hand held device is within said predetermined proximity of said retail store, and

said processor is configured to generate said promotion based on said customer identifier.

27. The retail store system of Claim 25, wherein

said user initiated wireless signal comprises a product identifier entered into and transmitted from said hand held device while said hand held device is within said predetermined proximity of said retail store, and

said processor is configured to generate said promotion based on said product identifier.

28. The retail store system of Claim 27, wherein said processor is configured to transmit product information relating to said product identifier to said hand held device along with said promotion.

29. The retail store system of Claim 16, wherein said processor is configured to generate a standard promotion that is indiscriminately transmitted to all hand held devices for which a wireless communications link is established.

30. A retail store system comprising:

means for establishing a wireless communications link with a hand held device located within a predetermined proximity of a retail store;

means for obtaining a promotion relating to retail products offered by said retail store;

means for delivering said promotion to said hand held device via said wireless communications link.

31. The retail store system of Claim 30, further comprising:

means receiving a customer identifier associated with a customer from said hand held

device via said wireless communications link; and

means generating said promotion based on said customer identifier.

32. The retail store system of Claim 31, further comprising:

means for receiving a product identifier from said hand held device via said wireless communications link; and

means for generating said promotion based on said product identifier.

33. The retail store system of Claim 32, further comprising means for transmitting product information relating to said product identifier to said hand held device along with said promotion.

34. A method comprising:

establishing a wireless communications link with a retail store system related to a retail store when within a predetermined proximity of said retail store;

receiving a promotion relating to retail products offered by said retail store via said wireless communications link.

35. The method of Claim 34, wherein said step of establishing a wireless communications link comprises automatically establishing a wireless communications link with said retail store system when within a predetermined proximity of said retail store.

36. The method of Claim 35, wherein said step of automatically establishing a communications link comprises:

continuously monitoring for a survey signal transmitted by said retail store system to said predetermined proximity; and

transmitting a proximity signal, in response to said survey signal, to said retail store system when within a predetermined proximity of said retail store.

37. The method of Claim 34, wherein said step of automatically establishing a communications link comprises:

continuously transmitting a proximity signal; and

receiving a response from said retail store system when said proximity signal is transmitted within said predetermined proximity.

38. The method of Claim 34, further comprising:

transmitting a customer identifier associated with a customer to said retail store system via said wireless communications link; and

receiving a promotion generated based on said customer identifier.

39. The method of Claim 34, further comprising:

transmitting a product identifier to said retail store system via said wireless communications link; and

receiving a promotion generated based on said product identifier.

40. The method of Claim 34, wherein said step of establishing a wireless communications link comprises transmitting a user initiated signal to said retail store system when within said predetermined proximity of said retail store.

41. The method of Claim 39, further comprising receiving product information relating to said product identifier along with said promotion.

42. The method of Claim 34, wherein said step of receiving a promotion comprises automatically receiving a standard promotion when a wireless communications link is established.

43. A computer readable medium containing program instructions for execution on a computer system, which when executed by the computer system, cause the computer system to perform the steps in the method recited in any one of Claims 34-42.

44. A hand held device comprising:

a memory device having embodied therein, data related to promotions; and

a processor in communication with said memory, said processor configured to:

establish a wireless communications link with a retail store system related to a retail store when within a predetermined proximity of the retail store; and

receive a promotion relating to retail products offered by said retail store via said wireless communications link.

45. The hand held device of Claim 44, wherein said processor is configured to automatically establish a wireless communications link with said retail store system when within a predetermined proximity of said retail store.

46. The hand held device of Claim 45, wherein said processor is configured to:

continuously monitor for a survey signal transmitted by said retail store system to said predetermined proximity; and

transmit a proximity signal, in response to said survey signal, to said retail store system when within a predetermined proximity of said retail store.

47. The hand held device of Claim 45, wherein said processor is configured to:

continuously transmit a proximity signal; and

receive a response from said retail store system when said proximity signal is transmitted within said predetermined proximity.

48. The hand held device of Claim 44, wherein said processor is configured to:

transmit a customer identifier associated with a customer to said retail store system via said wireless communications link; and

receive a promotion generated based on said customer identifier.

49. The hand held device of Claim 44, wherein said processor is configured to:

transmit a product identifier to said retail store system via said wireless communications link; and

receive said promotion generated based on said product identifier.

50. The hand held device of Claim 44, wherein said processor is configured to transmit a user initiated signal to said retail store system when within said predetermined proximity of said retail store.

51. The hand held device of Claim 49, wherein said processor is configured to receive product information relating to said product identifier along with said promotion.

52. The hand held device of Claim 44, wherein said processor is configured to automatically receive a standard promotion when a wireless communications link is established.

53. A hand held device comprising:

means for establishing a wireless communications link with a retail store system related to a retail store when within a predetermined proximity of the retail store; and

means for receiving a promotion relating to retail products offered by said retail via said wireless communications link.

54. The hand held device of Claim 53 further comprising:

means for transmitting a customer identifier associated with a customer to said retail store system via said wireless communications link; and

means for receiving said promotion generated based on said customer identifier.

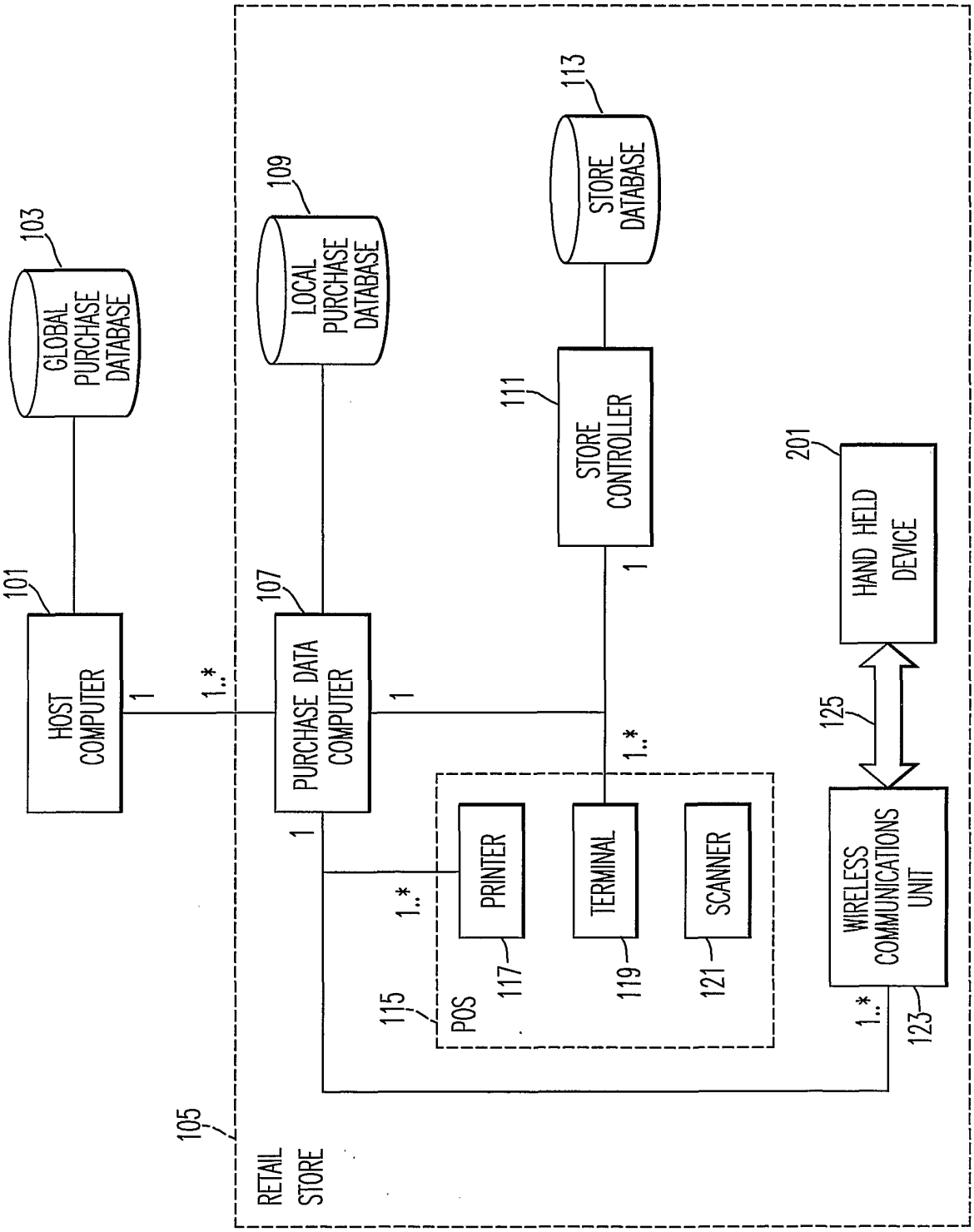
55. The method of Claim 54, further comprising:

means for transmitting a product identifier to said retail store system via said wireless communications link; and

means for receiving said promotion generated based on said product identifier.

56. The method of Claim 54, further comprising means for receiving product information relating to said product identifier along with said promotion.

FIG. 1


GLOBAL PURCHASE DATABASE
103
LOCAL PURCHASE DATABASE
109
STORE DATABASE
113
HOST COMPUTER
101
PURCHASE DATA COMPUTER
107
STORE CONTROLLER
111
HAND HELD DEVICE
201
1
1..*
1
1
1
1..*
125
PRINTER
TERMINAL
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WIRELESS COMMUNICATIONS UNIT
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1..*
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POS
117
119
121
123
105
RETAIL STORE

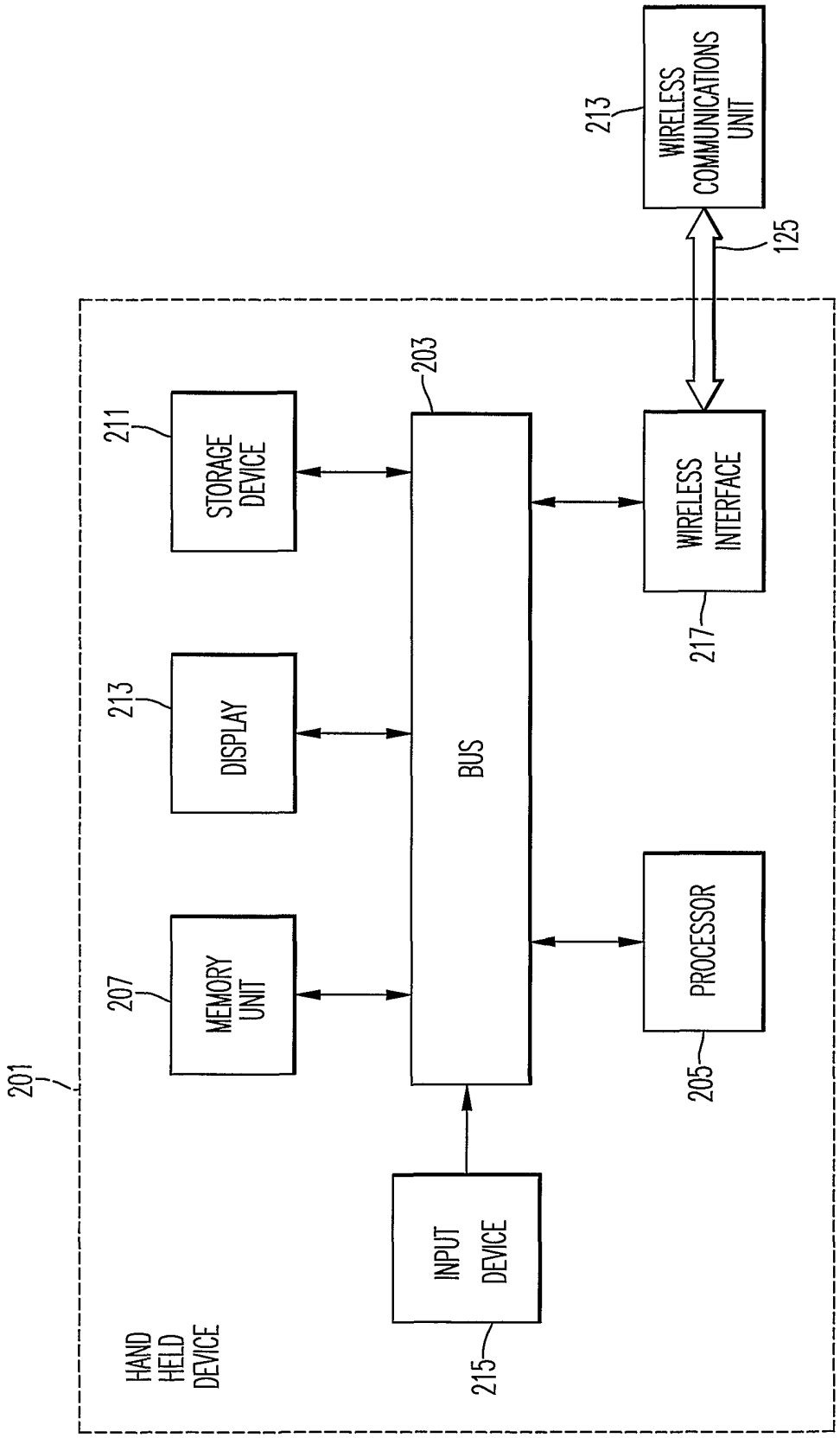
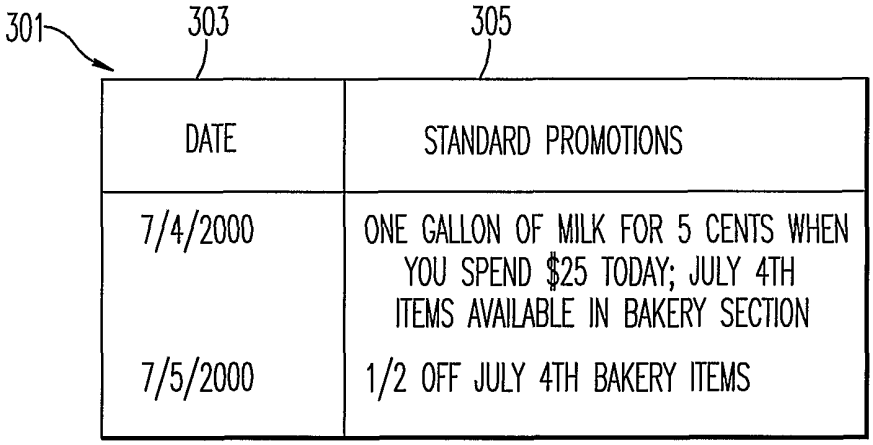
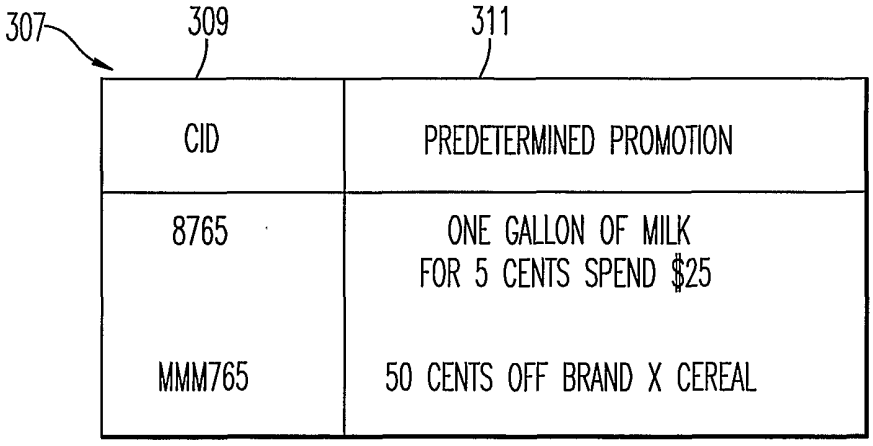

213
WIRELESS COMMUNICATIONS UNIT
125
203
211
STORAGE DEVICE
WIRELESS INTERFACE
217
213
DISPLAY
BUS
207
MEMORY UNIT
PROCESSOR
205
201
INPUT DEVICE
215
HAND HELD DEVICE

FIG. 2



DATE	STANDARD PROMOTIONS
7/4/2000	ONE GALLON OF MILK FOR 5 CENTS WHEN YOU SPEND $25 TODAY; JULY 4TH ITEMS AVAILABLE IN BAKERY SECTION
7/5/2000	1/2 OFF JULY 4TH BAKERY ITEMS

FIG. 3A



CID	PREDETERMINED PROMOTION
8765	ONE GALLON OF MILK FOR 5 CENTS SPEND $25
MMM765	50 CENTS OFF BRAND X CEREAL

FIG. 3B

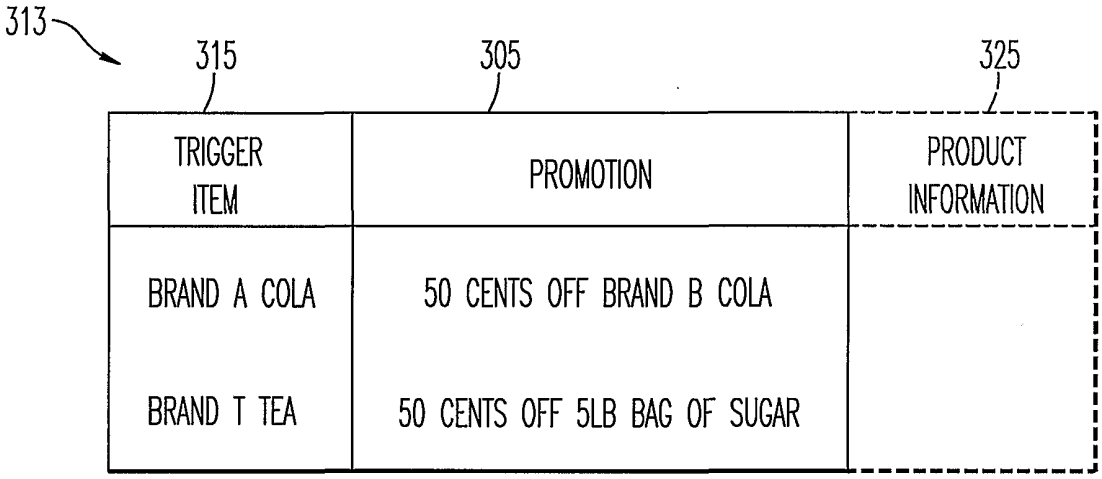

313
315
305
325
TRIGGER ITEM
PROMOTION
PRODUCT INFORMATION
BRAND A COLA
50 CENTS OFF BRAND B COLA
BRAND T TEA
50 CENTS OFF 5LB BAG OF SUGAR

FIG. 3C

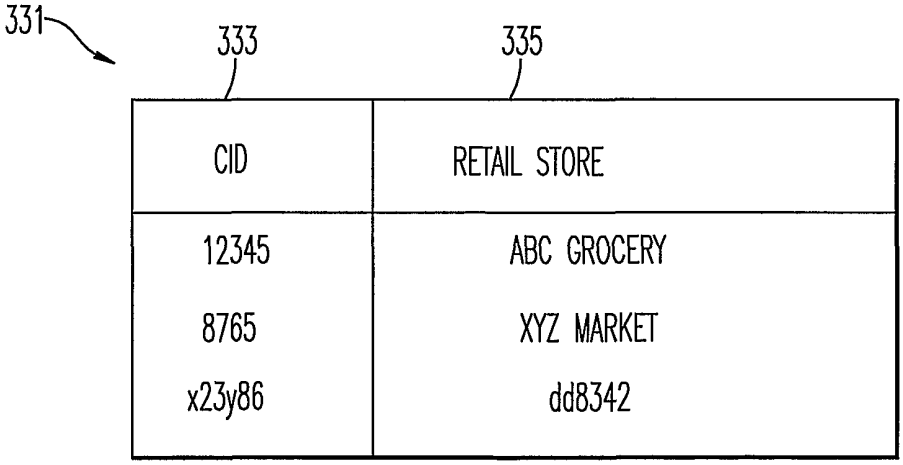

331
333
335
CID
RETAIL STORE
12345
ABC GROCERY
8765
XYZ MARKET
x23y86
dd8342

FIG. 3D

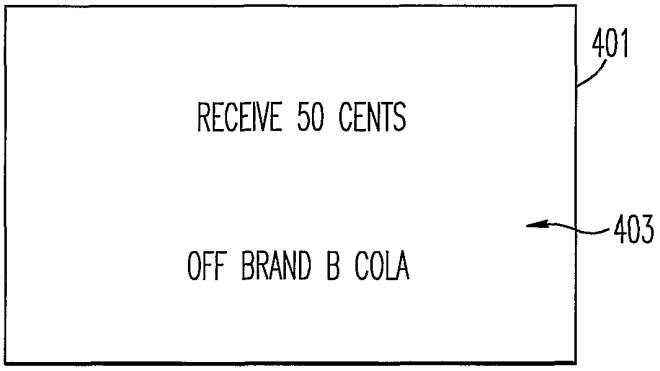


FIG. 4A

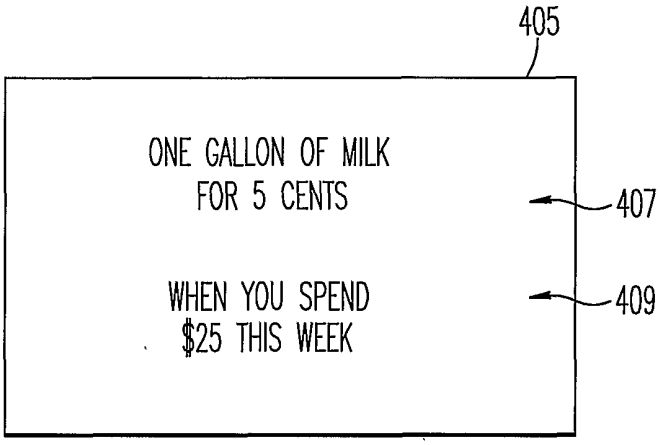


FIG. 4B

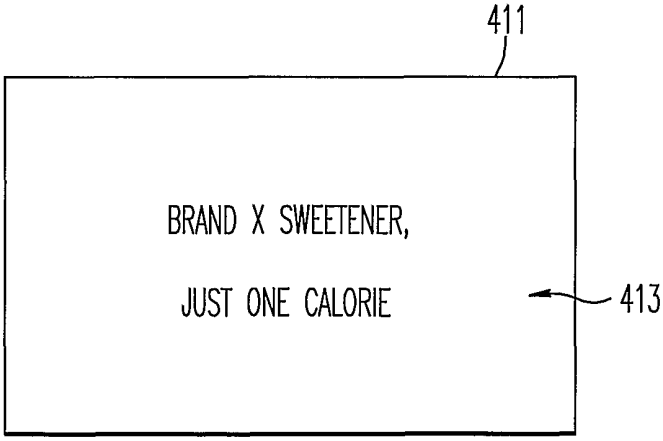


FIG. 4C

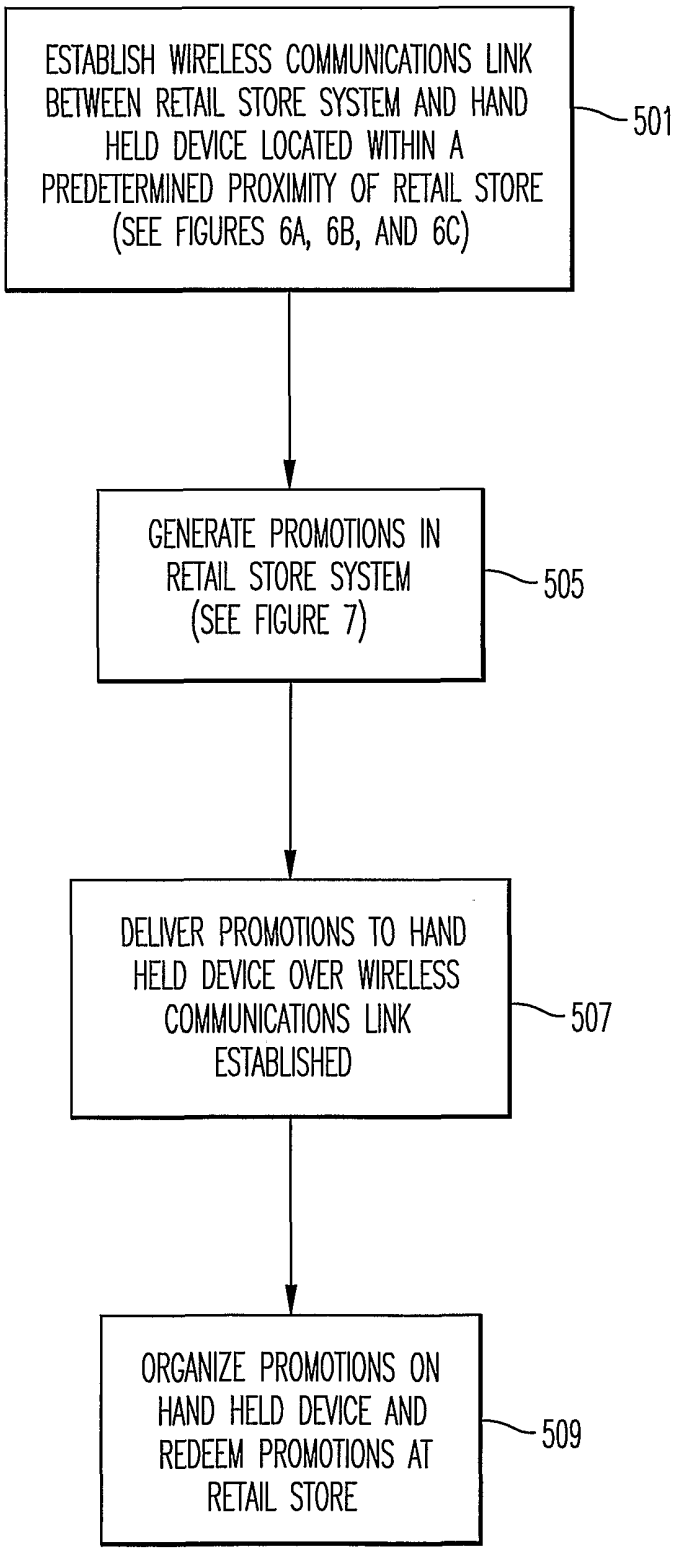

ESTABLISH WIRELESS COMMUNICATIONS LINK BETWEEN RETAIL STORE SYSTEM AND HAND HELD DEVICE LOCATED WITHIN A PREDETERMINED PROXIMITY OF RETAIL STORE (SEE FIGURES 6A, 6B, AND 6C)
501
GENERATE PROMOTIONS IN RETAIL STORE SYSTEM (SEE FIGURE 7)
505
DELIVER PROMOTIONS TO HAND HELD DEVICE OVER WIRELESS COMMUNICATIONS LINK ESTABLISHED
507
ORGANIZE PROMOTIONS ON HAND HELD DEVICE AND REDEEM PROMOTIONS AT RETAIL STORE
509

FIG. 5

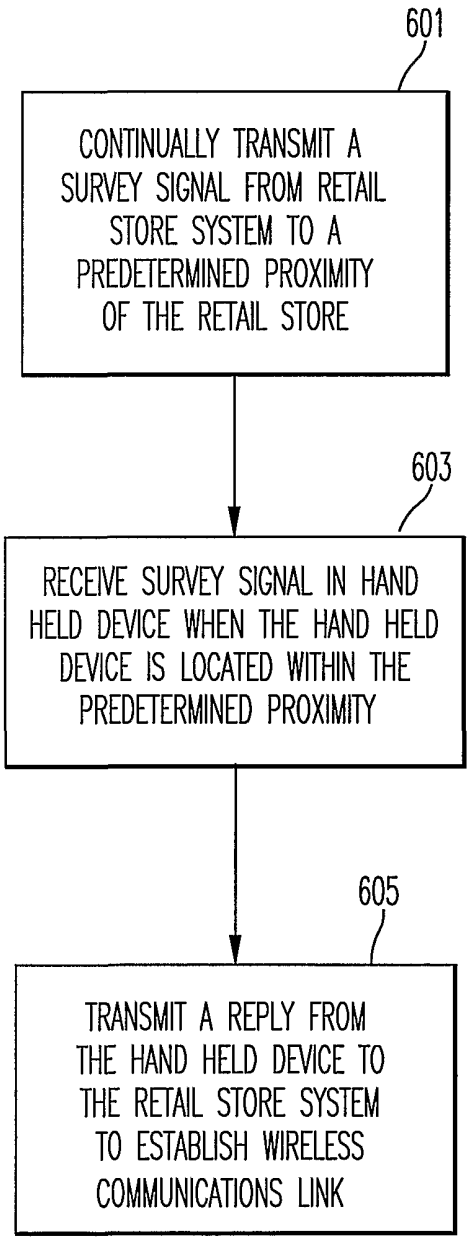

601
CONTINUALLY TRANSMIT A SURVEY SIGNAL FROM RETAIL STORE SYSTEM TO A PREDETERMINED PROXIMITY OF THE RETAIL STORE
603
RECEIVE SURVEY SIGNAL IN HAND HELD DEVICE WHEN THE HAND HELD DEVICE IS LOCATED WITHIN THE PREDETERMINED PROXIMITY
605
TRANSMIT A REPLY FROM THE HAND HELD DEVICE TO THE RETAIL STORE SYSTEM TO ESTABLISH WIRELESS COMMUNICATIONS LINK

FIG. 6A

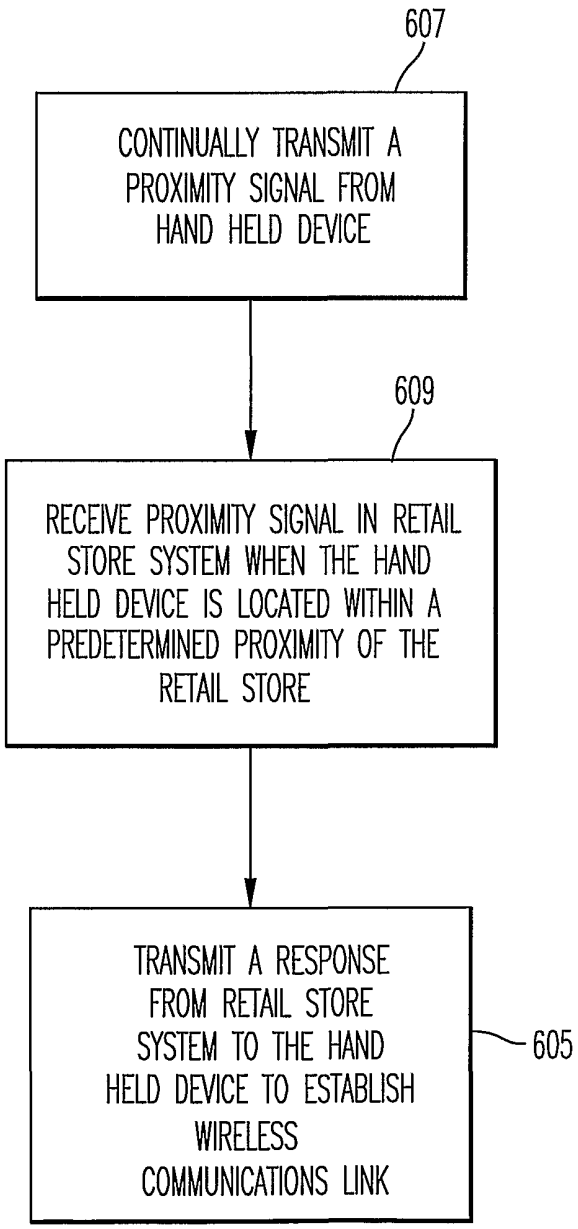

607
CONTINUALLY TRANSMIT A PROXIMITY SIGNAL FROM HAND HELD DEVICE
609
RECEIVE PROXIMITY SIGNAL IN RETAIL STORE SYSTEM WHEN THE HAND HELD DEVICE IS LOCATED WITHIN A PREDETERMINED PROXIMITY OF THE RETAIL STORE
TRANSMIT A RESPONSE FROM RETAIL STORE SYSTEM TO THE HAND HELD DEVICE TO ESTABLISH WIRELESS COMMUNICATIONS LINK
605

FIG. 6B

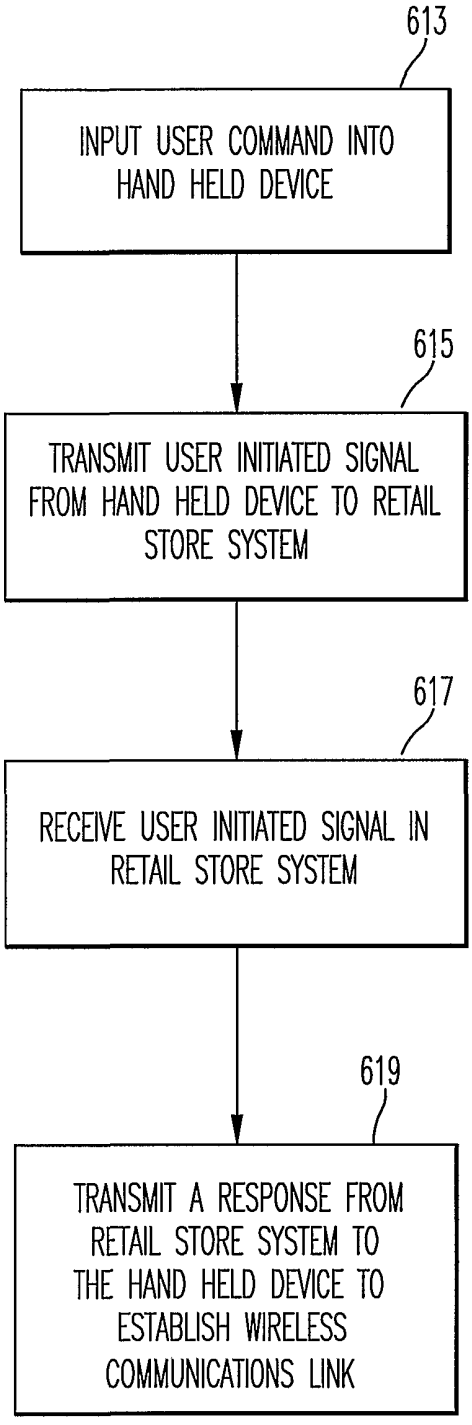

613
INPUT USER COMMAND INTO HAND HELD DEVICE
615
TRANSMIT USER INITIATED SIGNAL FROM HAND HELD DEVICE TO RETAIL STORE SYSTEM
617
RECEIVE USER INITIATED SIGNAL IN RETAIL STORE SYSTEM
619
TRANSMIT A RESPONSE FROM RETAIL STORE SYSTEM TO THE HAND HELD DEVICE TO ESTABLISH WIRELESS COMMUNICATIONS LINK

FIG. 6C

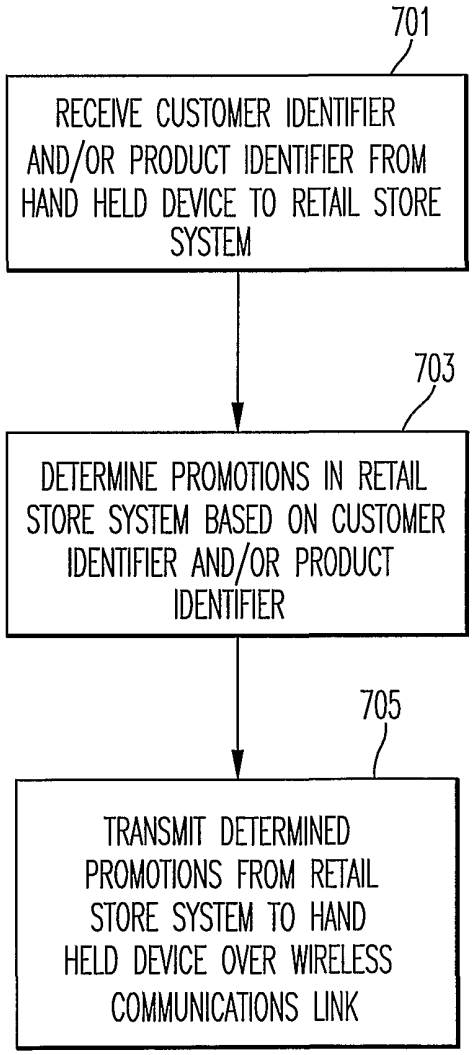

701
RECEIVE CUSTOMER IDENTIFIER AND/OR PRODUCT IDENTIFIER FROM HAND HELD DEVICE TO RETAIL STORE SYSTEM
703
DETERMINE PROMOTIONS IN RETAIL STORE SYSTEM BASED ON CUSTOMER IDENTIFIER AND/OR PRODUCT IDENTIFIER
705
TRANSMIT DETERMINED PROMOTIONS FROM RETAIL STORE SYSTEM TO HAND HELD DEVICE OVER WIRELESS COMMUNICATIONS LINK

FIG. 7

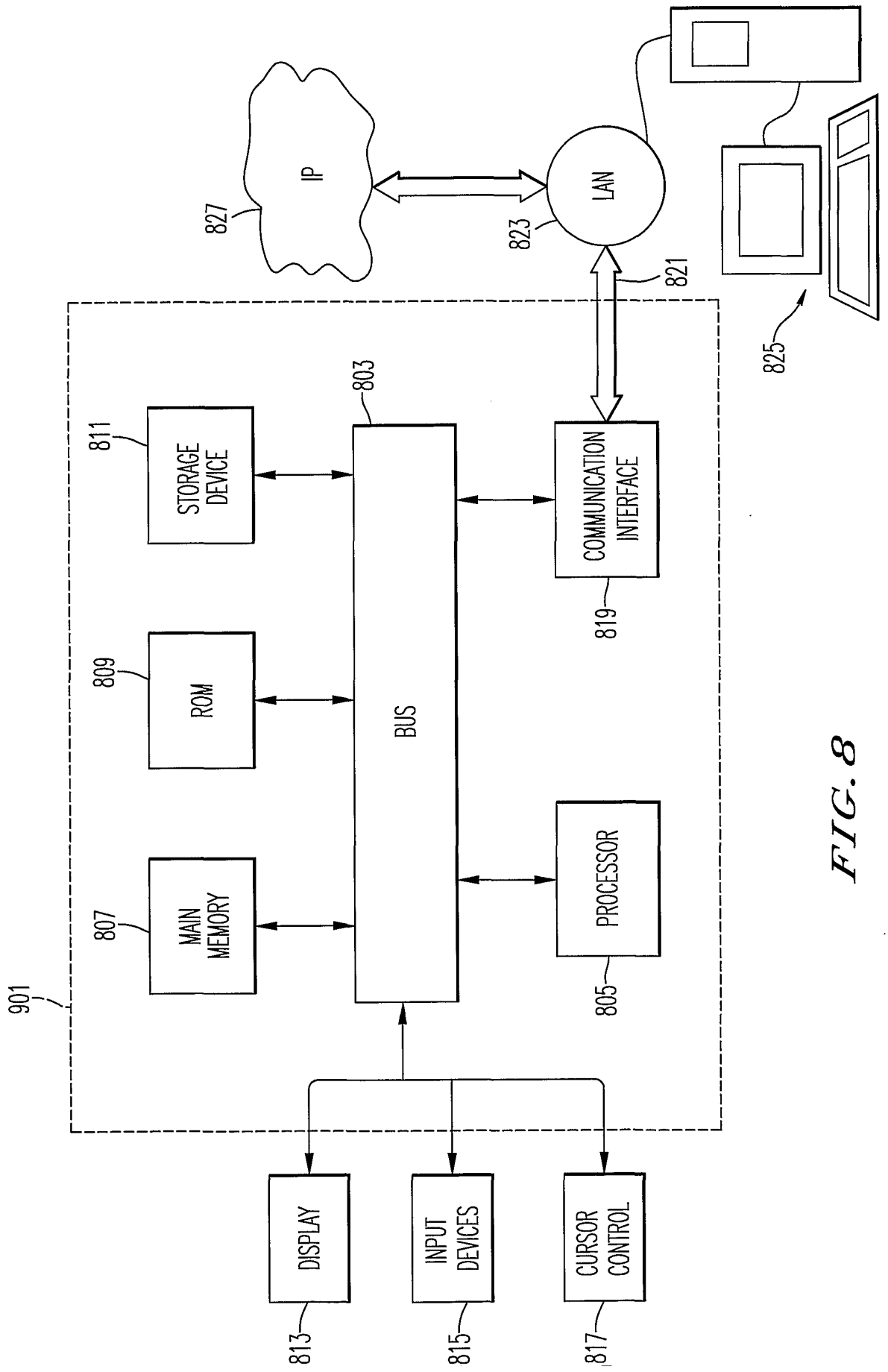

IP
827
LAN
823
821
825
803
811
STORAGE DEVICE
COMMUNICATION INTERFACE
819
809
ROM
BUS
807
MAIN MEMORY
PROCESSOR
805
901
DISPLAY
INPUT DEVICES
CURSOR CONTROL
813
815
817

FIG. 8