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(54) **PLANOGRAM GUIDED SHOPPING**

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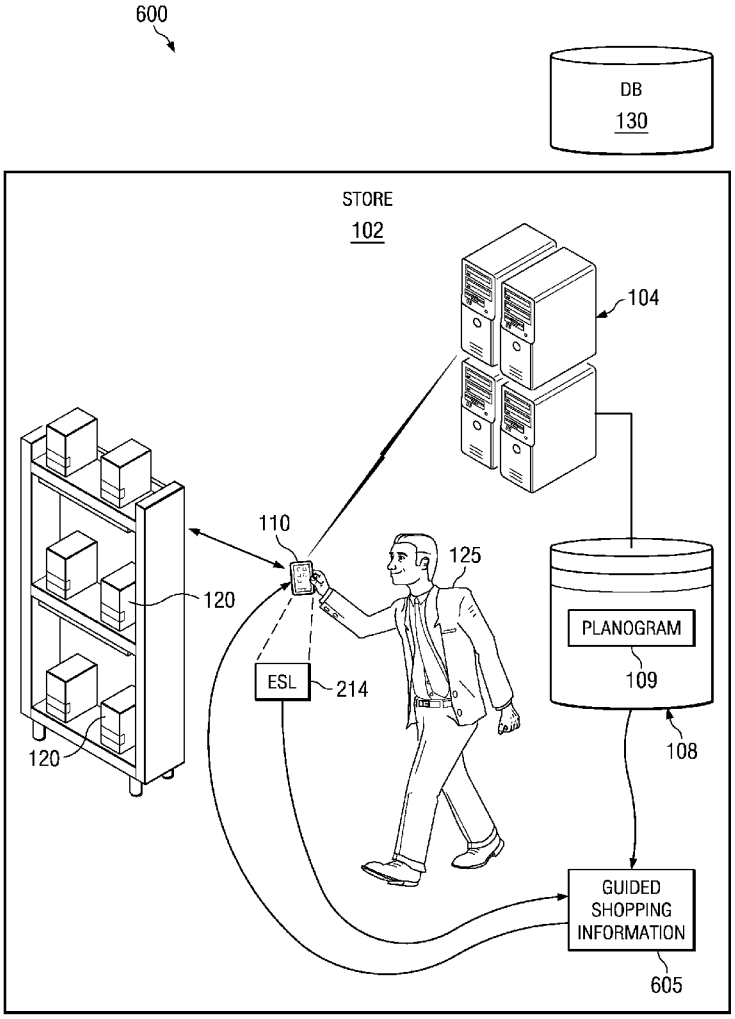
(57) **ABSTRACT**

A method and system of facilitating shopping within a store enables detection of a wireless device in proximity to a store, identification of items in an electronic shopping list (ESL) resident in the wireless device, and the provision of guided shopping information to the wireless device by accessing item location data so as to facilitate navigation of the store to locate the ESL items. The items in the ESL may be sorted based on the item location data and the sorted ESL may be provided to the wireless device. An image of a layout of the store may be provided to the wireless device. Text based directions for navigating the store to locate items in the ESL may be provided to the wireless device.



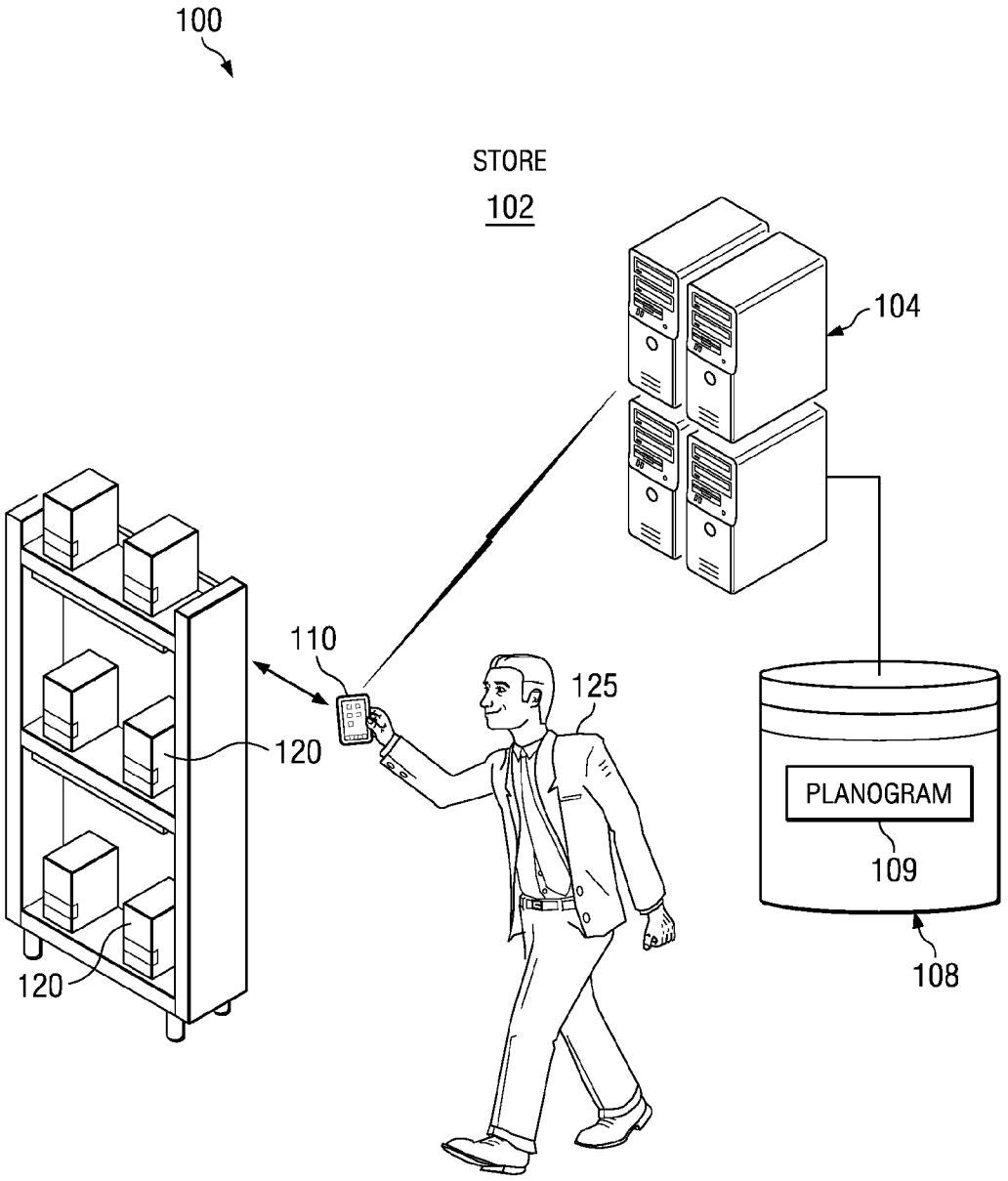
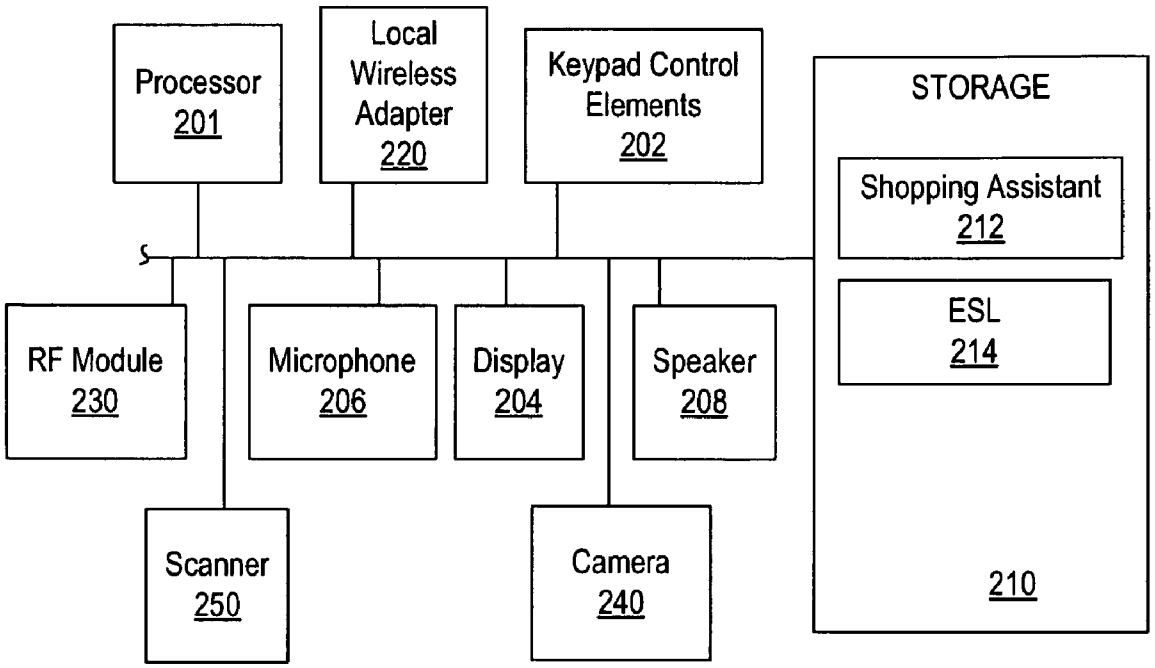
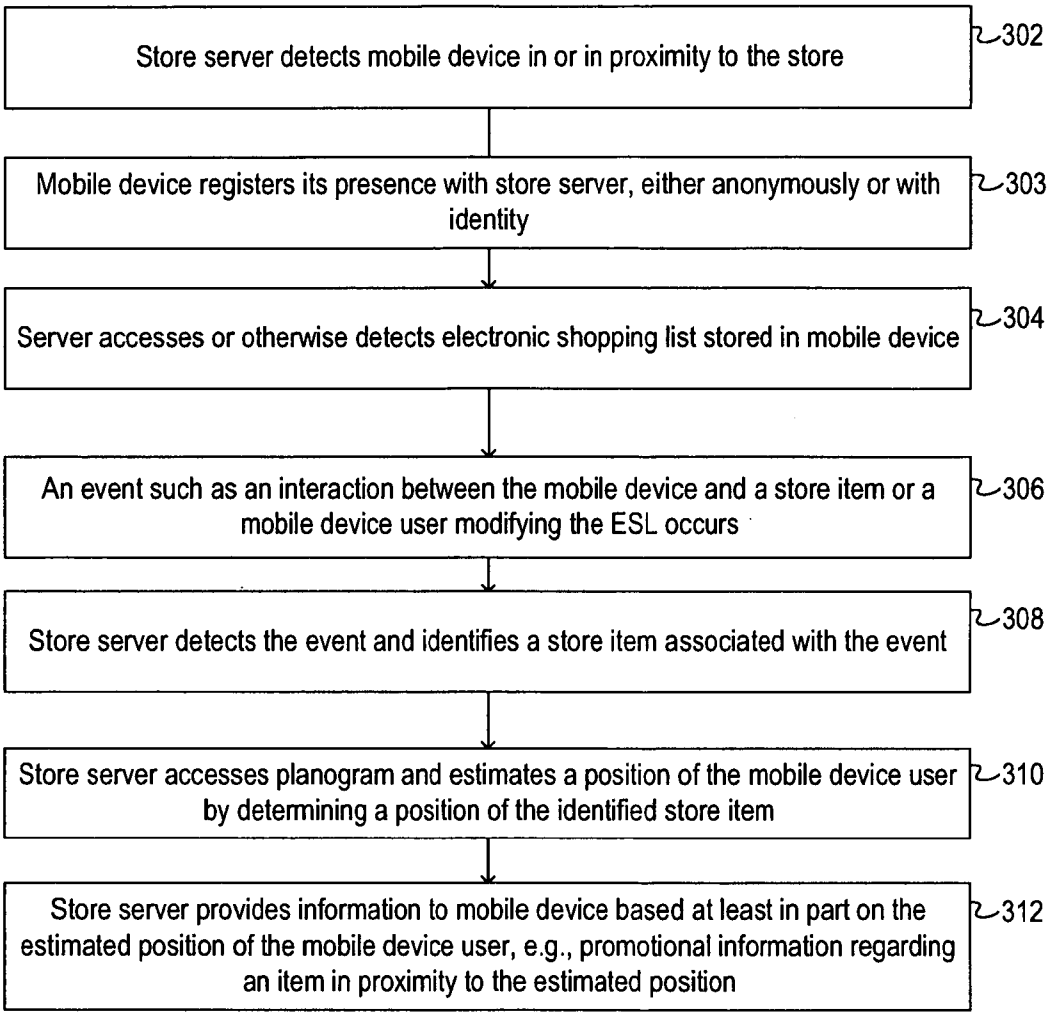


FIG. 1


Processor
201
Local
Wireless
Adapter
220
Keypad Control
Elements
202
STORAGE
Shopping Assistant
212
ESL
214
210
RF Module
230
Microphone
206
Display
204
Speaker
208
Scanner
250
Camera
240

110

FIG. 2


Store server detects mobile device in or in proximity to the store
302
Mobile device registers its presence with store server, either anonymously or with identity
303
Server accesses or otherwise detects electronic shopping list stored in mobile device
304
An event such as an interaction between the mobile device and a store item or a mobile device user modifying the ESL occurs
306
Store server detects the event and identifies a store item associated with the event
308
Store server accesses planogram and estimates a position of the mobile device user by determining a position of the identified store item
310
Store server provides information to mobile device based at least in part on the estimated position of the mobile device user, e.g., promotional information regarding an item in proximity to the estimated position
312

300

FIG. 3

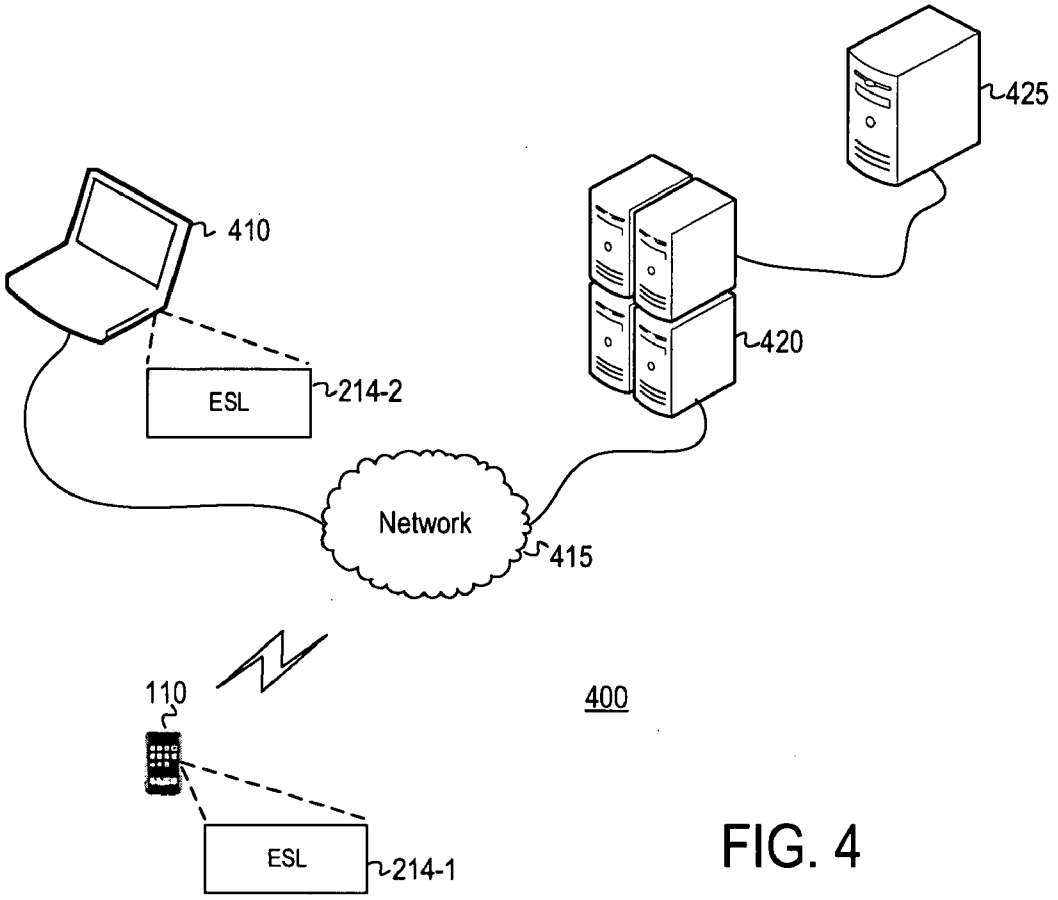
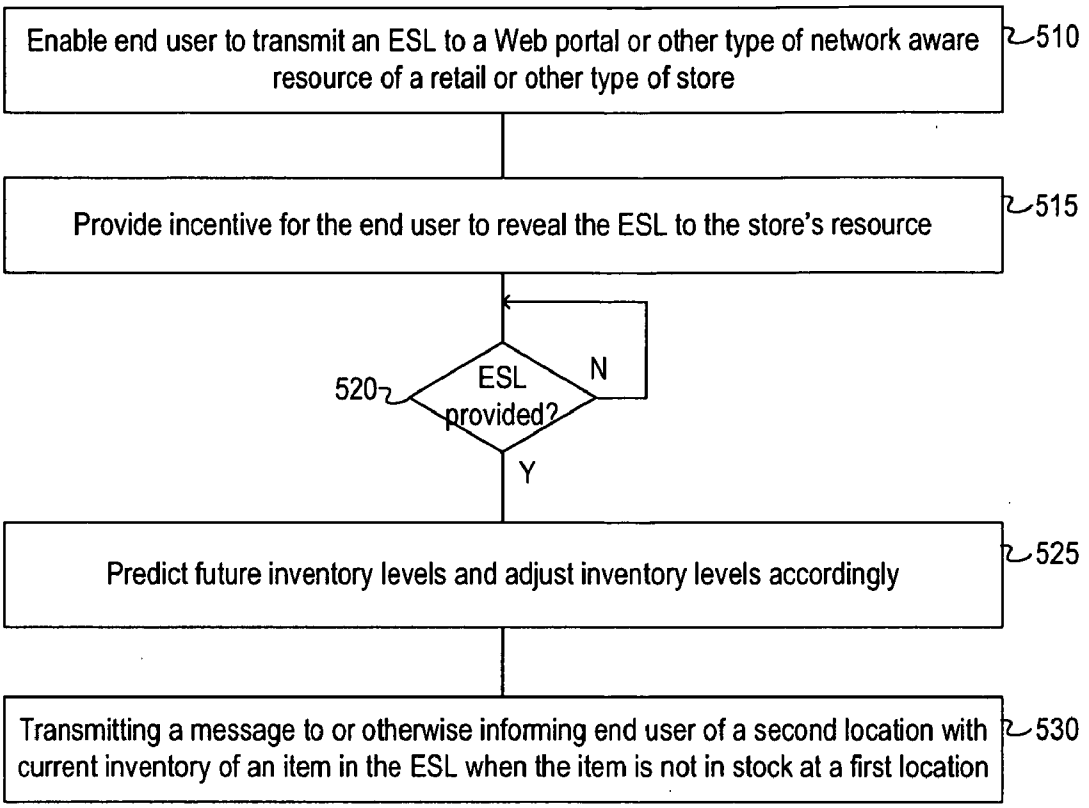


FIG. 4


Enable end user to transmit an ESL to a Web portal or other type of network aware resource of a retail or other type of store
510
Provide incentive for the end user to reveal the ESL to the store's resource
515
520
ESL provided?
N
Y
Predict future inventory levels and adjust inventory levels accordingly
525
Transmitting a message to or otherwise informing end user of a second location with current inventory of an item in the ESL when the item is not in stock at a first location
530

500

FIG. 5

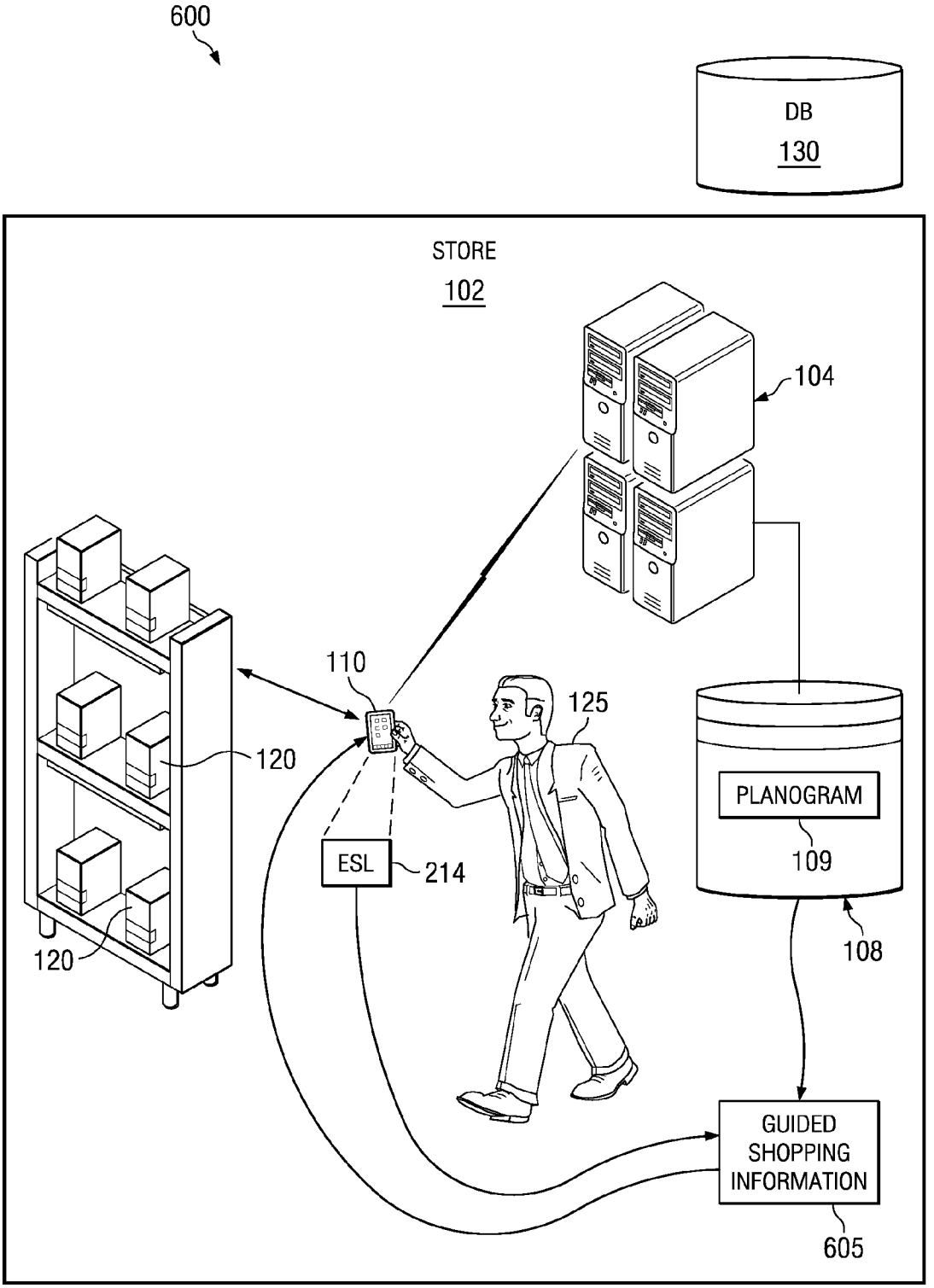
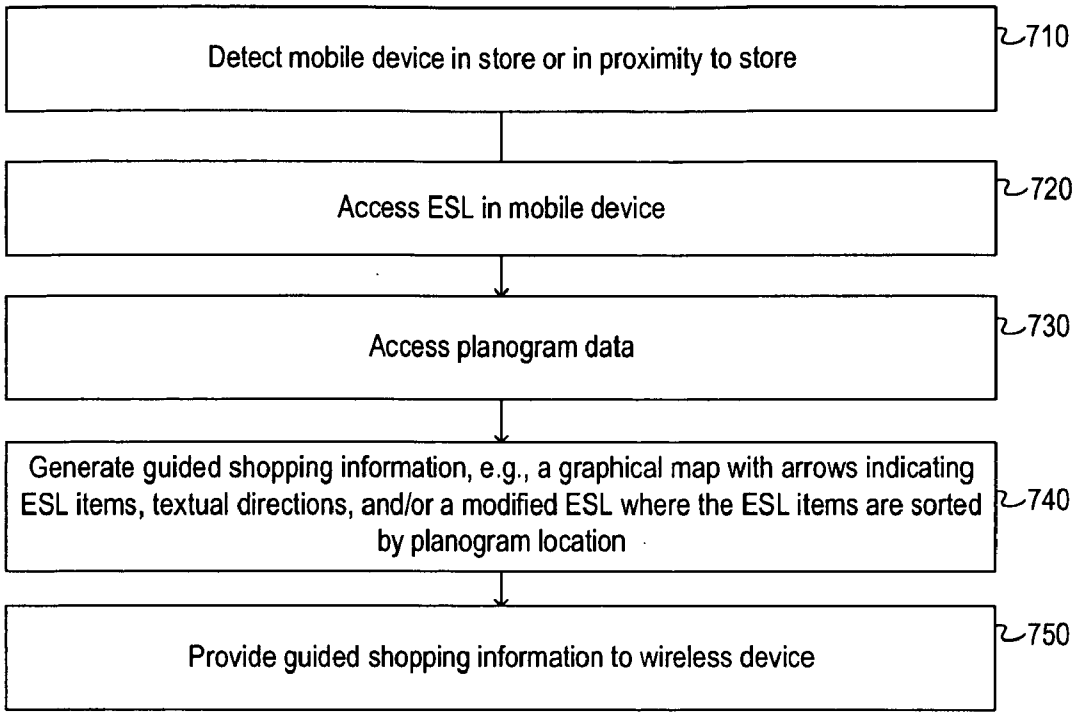
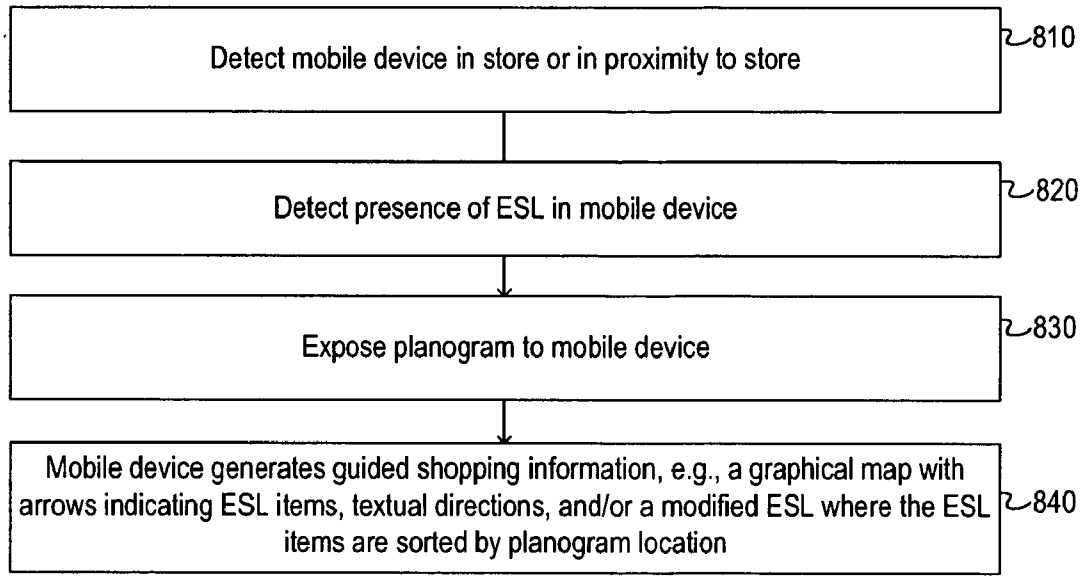

600
DB
130
STORE
102
104
110
125
120
120
ESL
214
PLANOGRAM
109
108
GUIDED
SHOPPING
INFORMATION
605

FIG. 6


Detect mobile device in store or in proximity to store
710
Access ESL in mobile device
720
Access planogram data
730
Generate guided shopping information, e.g., a graphical map with arrows indicating ESL items, textual directions, and/or a modified ESL where the ESL items are sorted by planogram location
740
Provide guided shopping information to wireless device
750

700

FIG. 7


Detect mobile device in store or in proximity to store
810
Detect presence of ESL in mobile device
820
Expose planogram to mobile device
830
Mobile device generates guided shopping information, e.g., a graphical map with arrows indicating ESL items, textual directions, and/or a modified ESL where the ESL items are sorted by planogram location
840

800

FIG. 8

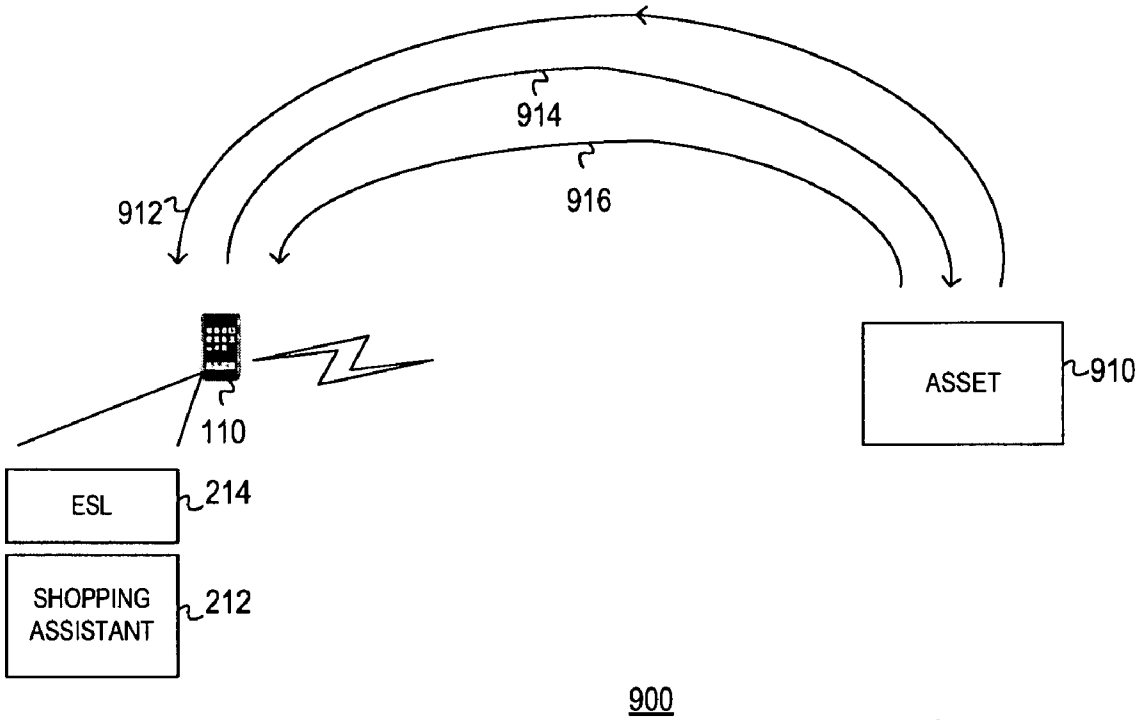


FIG. 9

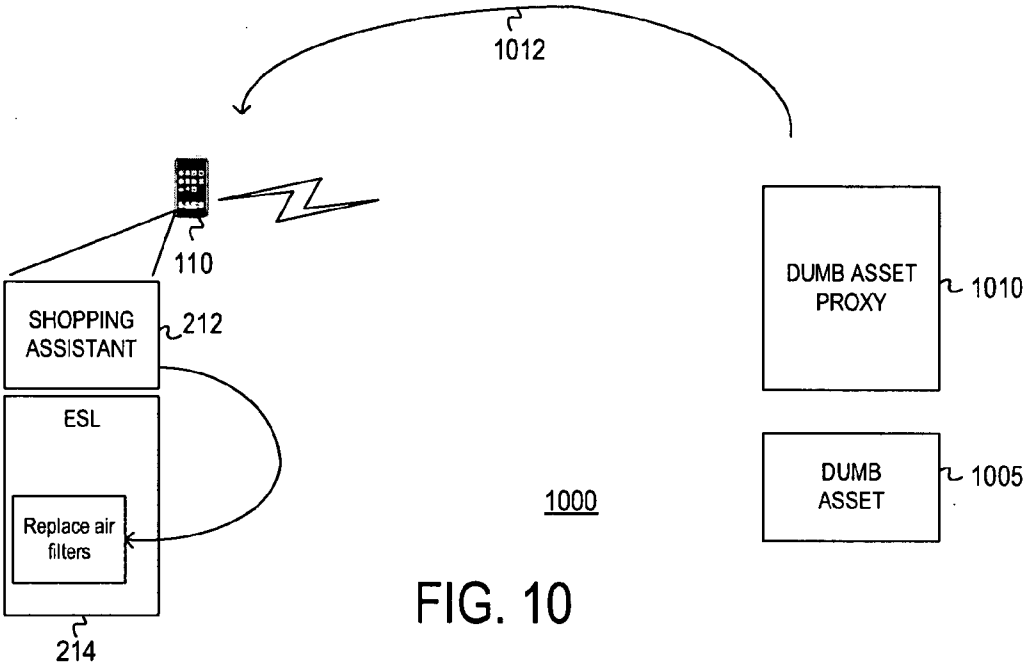

1012
110
SHOPPING ASSISTANT
212
ESL
Replace air filters
214
DUMB ASSET PROXY
1010
DUMB ASSET
1005
1000

FIG. 10

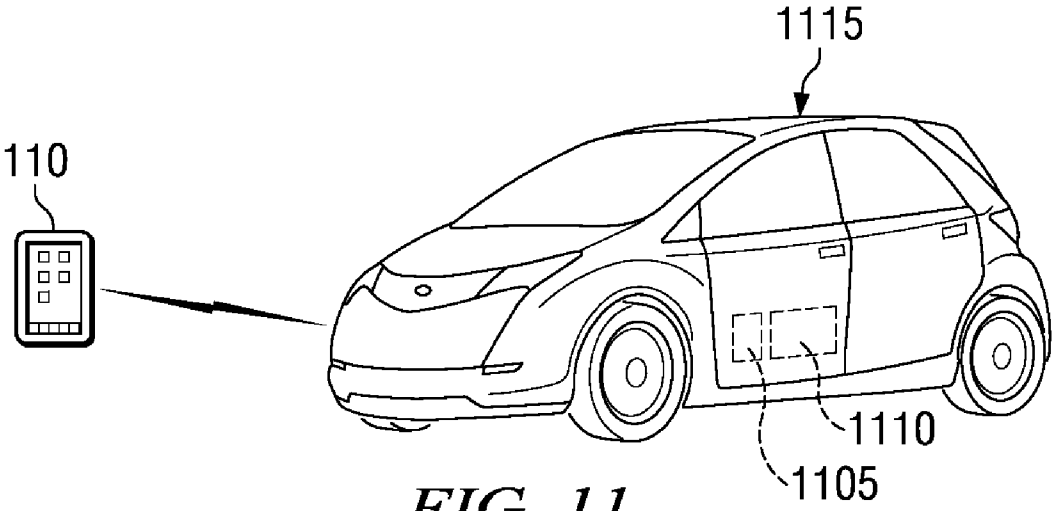

1115
110
1110
1105

FIG. 11

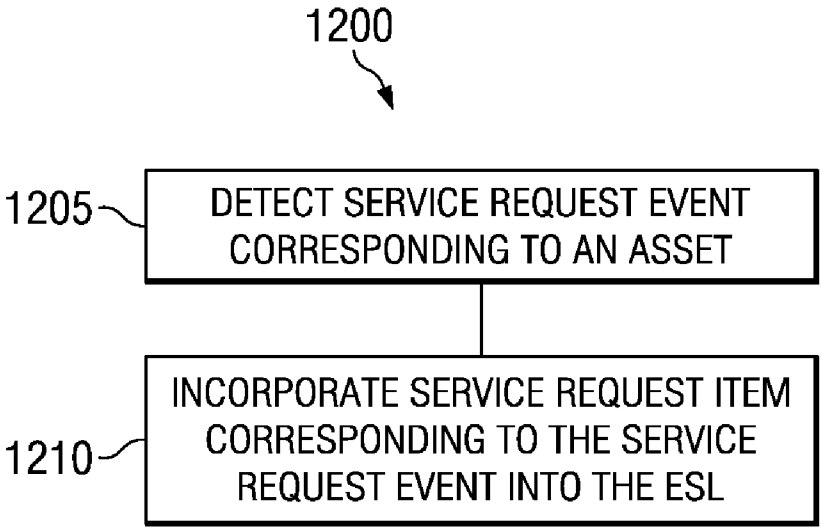

1200
1205
DETECT SERVICE REQUEST EVENT CORRESPONDING TO AN ASSET
1210
INCORPORATE SERVICE REQUEST ITEM CORRESPONDING TO THE SERVICE REQUEST EVENT INTO THE ESL

FIG. 12

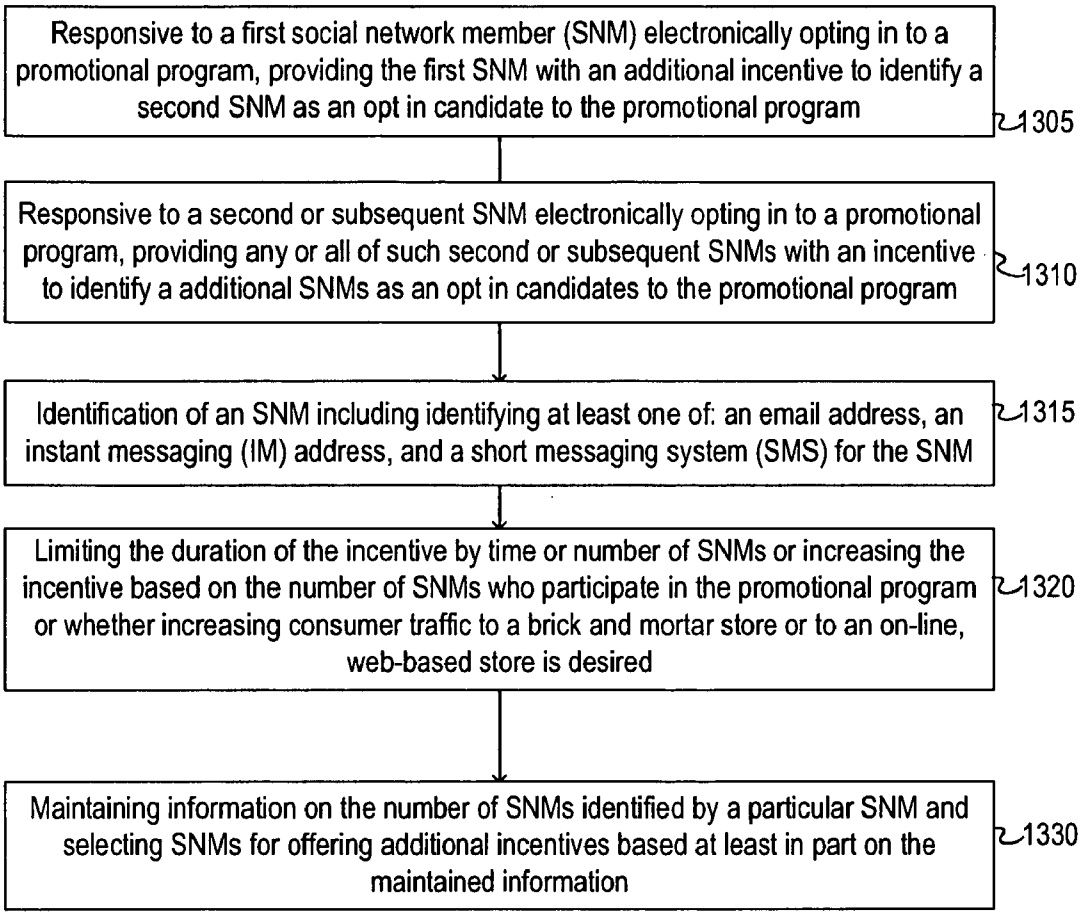

Responsive to a first social network member (SNM) electronically opting in to a promotional program, providing the first SNM with an additional incentive to identify a second SNM as an opt in candidate to the promotional program
1305
Responsive to a second or subsequent SNM electronically opting in to a promotional program, providing any or all of such second or subsequent SNMs with an incentive to identify a additional SNMs as an opt in candidates to the promotional program
1310
Identification of an SNM including identifying at least one of: an email address, an instant messaging (IM) address, and a short messaging system (SMS) for the SNM
1315
Limiting the duration of the incentive by time or number of SNMs or increasing the incentive based on the number of SNMs who participate in the promotional program or whether increasing consumer traffic to a brick and mortar store or to an on-line, web-based store is desired
1320
Maintaining information on the number of SNMs identified by a particular SNM and selecting SNMs for offering additional incentives based at least in part on the maintained information
1330
1300

FIG. 13

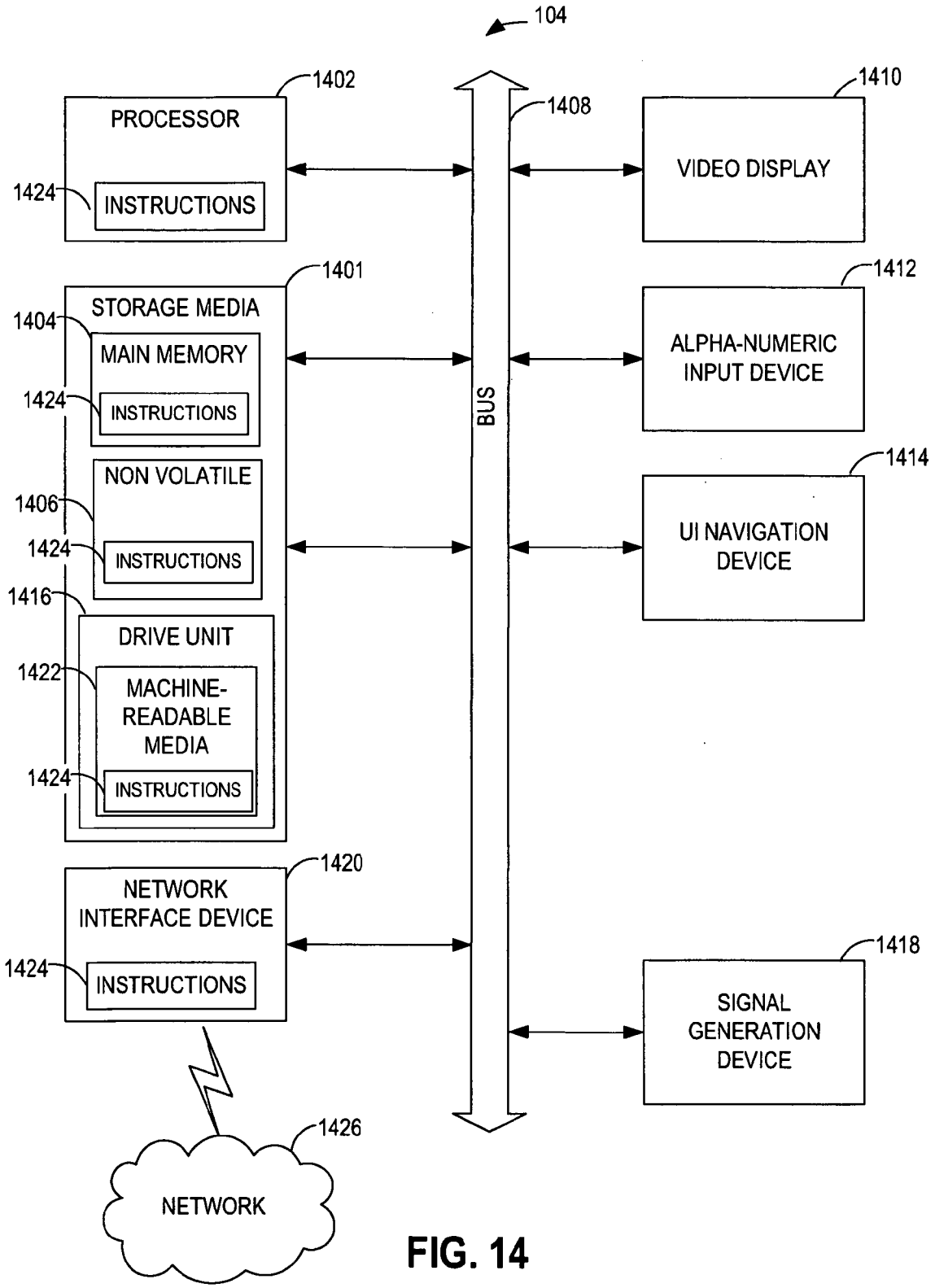

104
1402
PROCESSOR
1424
INSTRUCTIONS
1408
1410
VIDEO DISPLAY
1401
STORAGE MEDIA
1404
MAIN MEMORY
1424
INSTRUCTIONS
NON VOLATILE
1406
1424
INSTRUCTIONS
1416
DRIVE UNIT
1422
MACHINE-READABLE MEDIA
1424
INSTRUCTIONS
BUS
1412
ALPHA-NUMERIC INPUT DEVICE
1414
UI NAVIGATION DEVICE
1420
NETWORK INTERFACE DEVICE
1424
INSTRUCTIONS
1418
SIGNAL GENERATION DEVICE
1426
NETWORK

FIG. 14

PLANOGRAM GUIDED SHOPPING

[0001] This application claims priority from provisional application 61/096,657 filed Sep. 12, 2008, which is incorporated herein by this reference as if set forth in its entirety.

BACKGROUND

[0002] 1. Field of the Disclosure

[0003] The present disclosure relates to providing shopping assistance, and more particularly to providing shopping assistance to locate items within a retail shopping environment.

[0004] 2. Description of the Related Art

[0005] Shopping within a retail store involves the end user, i.e., shopper or consumer, knowing the location of items intended to be purchased by the user. Stores generally provide maps, aisle descriptions, signage, and clerks to assist in identifying item location.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. **1** depicts a mobile device and selected other elements of an embodiment of a system suitable for estimating the current location of a shopper or other type of user within a store such as a retail store;

[0007] FIG. **2** is a block diagram of selected hardware and software elements, including a shopping assistant module, of an embodiment of a mobile device depicted in FIG. **1**;

[0008] FIG. **3** is flow diagram of selected elements of an embodiment of an electronic shopping assistance method;

[0009] FIG. **4** depicts a mobile device and selected other elements of an embodiment of a system suitable for facilitating inventory management;

[0010] FIG. **5** is flow diagram of selected elements of an embodiment of an inventory management method performed by the system of FIG. **4**;

[0011] FIG. **6** depicts a mobile device and selected other elements of an embodiment of a system suitable for providing electronic shopping list (ESL) specific item location assistance within a store;

[0012] FIG. **7** is a flow diagram of selected elements of an embodiment of an electronic shopping assistance method;

[0013] FIG. **8** is a flow diagram of selected elements of an embodiment of an additional electronic shopping assistance method;

[0014] FIG. **9** depicts a mobile device and selected other elements of an embodiment of a system suitable for generating service requests for assets in the home and office;

[0015] FIG. **10** depicts a mobile device and selected other elements of an embodiment of a system suitable for generating service requests for dumb assets in the home and office;

[0016] FIG. **11** depicts a mobile device and selected other elements of an embodiment of a system suitable for generating service requests for assets having non-compliant communication protocols;

[0017] FIG. **12** is a flow diagram of selected elements of an embodiment of a method for generating service notifications for use by a mobile device shopping assistant and inclusion in a mobile device ESL;

[0018] FIG. **13** is a flow diagram of selected elements of an embodiment of a method for leveraging social networks for retailing; and

[0019] FIG. **14** illustrates a data processing system suitable for use with disclosed embodiments of an electronic shopping assistance method.

DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0020] To efficiently shop in a retail store, an end user or shopper must either know where items are located via past experience, or figure out the layout of the store, or request help. This may be complicated by having numerous items to purchase, and thereby, compounding the time to locate the items. When shoppers can't find an item, they frequently give up and leave the store. The disclosed subject matter compares the store's planogram or other type of data structure that includes item location information, to an end user's electronic shopping list (ESL) on a mobile device. The disclosed method may re-order the ESL based on the store location of the ESL items as indicated in the planogram location, e.g., aisle by aisle, and area by area, so as to facilitate the end user's efficient movement through the store to acquire the applicable items. Additionally, a store map of aisle and area location could be provided to the mobile device as an overall guide to the layout of the store.

[0021] The disclosed subject matter improves the shopping experience of the shopper. It provides them the item location information in an ordered fashion and removes the need for the shopper or end user to look to maps, kiosks, signage, or store clerks for assistance in locating items and can be particularly important during seasonal changeovers or other reorganization of store layouts.

[0022] In a first aspect, the disclosed subject matter encompasses the application of a store planogram to an ESL on a mobile device to provide guidance to item location in the applicable store. The disclosed subject matter provides the end user with a detailed plan for a recommended sequence of locating the items within the store. The detailed plan may be provided as text (e.g., by aisle and area) or as pictures illustrating the item and location in the aisle and area.

[0023] In a second aspect, disclosed methods, systems, devices, and software enable locating a user or shopper with respect to items in a store, and thereby, locating the position of the user in the store. In one embodiment, the disclosed subject matter identifies the general location of the user in a store by exposing a store planogram (i.e., a database or data structure that includes information from which locations, maps, or diagrams of items, fixtures, and/or facilities within the store can be generated) to a mobile or wireless device of the user. The planogram contains data that indicates the location of the store items and this information may be used to identify the location of the user within the store. The mobile device may be a network aware device capable of wirelessly communicating via an IP or other type of packet-switched network. The mobile device may further include cellular telephony functionality. The mobile device may have processing capacity, display resources, and keypad support sufficient to execute applications such as Web browsers and other applications. In embodiments suitable for use in retail shopping applications, the mobile device may further include a camera or other type of image capture device and the user may cause the mobile device to interact with a store item by scanning or entering bar codes, UPC codes, pictures, etc. of the store item. The user may convey information pertaining to a store item by removing or checking off the store item from an ESL saved in a memory or other type of storage media of the mobile device.

The disclosed subject matter permits a determination of the user's location within the store and facilitates opportunities for providing targeted promotion and services to the user based on the user's location. Currently, users generally locate themselves within a store via applicable signage or by requesting help from store employees. In addition to signage, stores often use high cost systems such as cameras and clerks to locate or assist users with questions pertaining to location or to otherwise provide additional promotions or services to users.

[0024] In one embodiment, the disclosed subject matter resolves user location within a store by making the store's planogram or schematic accessible to the user's mobile or wireless device. In one embodiment, an application, referred to herein as a shopping assistant, is provided for use with the user's mobile phone. The shopping assistant is operable to provide and maintain an ESL and may include hardware and/or software facilities to recognize store items by bar code, UPC code, pictures, and the like. When a shopping event, such as the mobile device interacting with a store item using the phone or the user moving an item from the ESL to a shopping cart, the shopping assistant may identify the location of the user from the store item involved in the shopping event and the item placement information within the store's planogram or schematic. As the user moves through the store and selects items, a location trail for the user may be developed. This location trail, or item selection trail, identifies the approximate location of the user. A more specific location may be established by having the user scan/enter multiple different items in proximity to the user. This procedure may establish the location of the user within a few feet. Users can request their location and, if the location is known because of recent actions in the selection trail, then a response can be provided. If the age of the selection trail exceeds a specified threshold, a request could be transmitted to the mobile device for display. The request could prompt the user to use the mobile device to scan, enter, or otherwise interact with some nearby store items in order to refine the location.

[0025] The disclosed subject matter provides the store and user with an estimate of the user's physical location with the store. The estimate may be a sufficiently accurate location for a variety of purposes, e.g., promoting items that are known to be close to the user's current location and guiding the user to items that are on the user's ESL. The estimate of the user's location derived in this manner is generally preferable to estimating the user's position using GPS systems, which are frequently unreliable or non-operational in stores because of metal roofs and structures that attenuate the signals necessary for precise location using GPS systems. In one embodiment, the user may be permitted to opt-in or to opt-out of the location estimation system. The disclosed subject matter benefits the store by providing a mechanism for location specific promotion and service to the user. Through one embodiment, the store would know where a user is in the store, and consequently, the store may better serve the specific needs and wants of the user while at the same time having minimal or no infrastructure costs associated with implementation of the disclosed subject matter (commonly referred to as chain math).

[0026] Because current retail promotion and inventory management is predicated on past behaviors, i.e., what has been purchased by the customer as opposed to what is planned to be purchased by the customer, current inventory planning is generally a best guess based on tracked behaviors of population groups. Additionally, there is little, if any personalization to the current methods of advertising via circulars, or broadcast advertisements. The closest method may be direct mail to an individual, but this is a costly technique.

[0027] The disclosed subject matter includes a shopping assistant/agent which is computer and mobile phone based and which has access to a retail organization portal. An end user or customer may prepare an ESL on both the computer and mobile phone which are kept synchronized. End users may selectively grant retail organizations access to their ESLs. End users may grant ESL access to retail organizations either anonymously or "personally," i.e., in such a way that the retail organization is aware of the user's identity. Retail organizations gain access to the ESL through the portal, in exchange for promotion information, coupons, store stock item detail, loyalty program features, additional services, discounts, and the like. Access to the end user's ESL provides a forward look into retail demand based on the specific intention of the end users who provide their ESLs. The lists allow retailers to more accurately anticipate demand, and consequently, plan inventory and promotions based on intended purchases rather than based on conventional statistical methods that rely entirely or substantially entirely on historical purchase data. Additional accuracy may be achieved by monitoring items identified on ESLs against items actually purchased. While an item may be on the ESL, it is an indication of intent to purchase, rather than a guarantee that the item will be purchased. Purchase history (like present techniques) can be compared with intentional list items providing a way to gauge the likelihood of purchase, thereby improving the list based forecast for inventory and promotions. The disclosed subject matter improves upon strict historical/statistical inventory and promotion techniques through access to ESLs, which are indicative of a specific intent to purchase the listed items. When these anticipatory ESLs are combined with actual purchase data, an intention gauge (actual purchase divided by intended purchase) is created that may further refine the forward looking requirements, e.g., by placing greater weight on anticipatory ESLs from users with a high intention gauge.

[0028] The result is that the disclosed subject matter may benefit retailers by providing them an accurate picture of consumer demand based upon specific intention. Consequently, the retailers can more reasonably plan inventory, thereby reducing capital tied up in excess inventory and provide sufficient stock-on-hand to meet consumer demand. Additionally, the retailers may better plan promotions to customers that have a specific intention to purchase items related to the promotions. The customers benefit by having access to products based on their intention-list (with items being available when and where they want/need them) and the retailers and customers both benefit by retailer promotions that are targeted to the appropriate consumer at reduced costs.

[0029] In a third aspect, subject matter describing retail promotion and inventory management based on anticipated customer or end user behavior is disclosed. The anticipated behavior is derived from ESLs provided by the end user from a web screen and/or mobile phone. The ESL may be voluntarily provided by the end user in exchange for consumer preference promotions based on the listed related items. The inventory management is derived from the provided list as a projection of future inventory requirements for the store.

[0030] In a fourth aspect, disclosed embodiments encompass systems and methods for incorporating service requests

for devices in the home and office into an ESL. A system may include a mobile device configured with a shopping assistant and an ESL. The mobile device may have local wireless capability, e.g., Bluetooth and/or WiFi capability, and would use the same to establish a service support relationship with devices or assets that require periodic maintenance or supplies. Such devices or assets may include computers, printers, water filters, air conditioning filters, automobiles, and the like. Depending on its communication capabilities, an asset may notify the mobile device shopping assistant when the asset needed service; for example, a printer may need a new color cartridge. The shopping assistant would then convert these notifications into service requests and include the service requests in the mobile device's ESL.

[0031] In cases where an asset lacks communication facilities (a "dumb" asset), yet still requires periodic servicing, a dumb asset proxy may generate periodic service notices that the shopping assistant can respond to. The dumb asset proxy may have access to a list of commonly encountered dumb assets, for example, air conditioning filters. Users may select which dumb assets they wish to receive periodic service notices for and the proxy would generate the requested requests for the applicable dumb assets at selected intervals. The dumb asset proxy may reside on the mobile device or elsewhere. Alternatively, a signaling device or other type of communication facility could be attached to a dumb asset. The signaling device may include a sensor that enables the signaling device to monitor a parameter of the asset, e.g., air flow through an air conditioning filter, and signal the shopping application when the monitored parameter fails to comply with a specified criteria.

[0032] Some assets may have communication facilities and interfaces, but those communication facilities and interfaces may not comply with communication protocols supported by the mobile device. For example, motor vehicles may have onboard diagnostic (OBD) facilities and an OBD-II interface that provide a wealth of diagnostic information in a standardized format, but not in a format that the mobile device would generally support. In cases such as these, a proxy in the form of a blue tooth adapter could be added to the asset's communication interface, e.g., the OBD-II interface on a motor vehicle to provide notice when both routine service intervals and other extraordinary events occur.

[0033] Consumers and end users have to maintain and service all manner of modern devices/assets. The disclosed service for automating service requests for assets and integrating the service requests into the ESL encompasses periodic replacement of consumables that can be performed by the end user or a service representative for the applicable device or asset. To extend the life and service of this equipment, these consumables must be replaced. Keeping track of all of this may be an ongoing inconvenience for an end user.

[0034] The disclosed subject matter informs, by periodic electronic notices or interrogation and push notices, the mobile device of the user of the need for service for various personal/business devices or assets. A shopping assistant residing on the mobile device may schedule applicable service or include applicable replacement parts on an ESL. The mobile device may query the applicable asset or a proxy connected to the asset to determine whether service is required or to verify that the connection with the applicable asset is working normally. The ESL may be shared with applicable retailers who may in turn provide the end user with an incentive to visit the retailer to purchase one or more of the items listed on the ESL.

[0035] In a fifth aspect, disclosed subject matter relates to providing incentives for social network members to opt into a promotional program associated with a retailer or other seller of goods or services. The disclosed subject matter provides for the tracking of social network members who participate in the promotional program. The retailer may be or include a brick and mortar store and an incentive to visit the brick and mortar store may be provided. Such incentives may include offering enhanced differential coupon value for a store visit over an online, web-based purchase.

[0036] In one embodiment, retailers tender store and product coupons to participant customers or end users that voluntarily opt in (subscribe) to receive the coupons. The end users may then refer their social network contacts to the incentive program by encouraging them to submit their web and phone addresses (email, IM, SMS, or the like etc.) to the retailers. This process may continue as long as the coupon tender is active. The coupon tender period may be limited so as to create scarcity and consequent value. The limit could be time, product quantity, number of participants or any other factor or changing factor determined to generate interest.

[0037] The social network referrals would be captured by the disclosed subject matter and used to identify primary lead generators, as well as market preference data for future demand generation. In one embodiment, interest would be promoted by increasing coupon value for lead-referral. The more participants, the more discount for the leaders and/or participants. Alternatively, additional coupon promotions and advertising may be offered during the tender period. Demand shaping for web and brick and mortar stores would be managed by differential coupon value for one or the other depending on where the coupon is exercised. For example, if there was a desire to drive demand to the brick and mortar store, then the coupon would have greater value at the store. The system also supports 'herd purchase' where an end user may gather a group (the herd) together and solicits a discount coupon from a participating retailer based on the size of the herd. The retailer may offer this facility to participants at any time on a range of goods; overstock or end of season.

[0038] In the following description, details are set forth by way of example to facilitate discussion of the disclosed subject matter. It should be apparent to a person of ordinary skill in the field, however, that the disclosed embodiments are exemplary and not exhaustive of all possible embodiments. Throughout this disclosure, a hyphenated form of a reference numeral refers to a specific instance of an element and the un-hyphenated form of the reference numeral refers to the element generically or collectively. Thus, for example, widget **12-1** refers to an instance of a widget class, which may be referred to collectively as widgets **12** and any one of which may be referred to generically as a widget **12**.

[0039] FIG. **1** depicts a mobile device **110** and other selected elements of an embodiment of a system **100** suitable for providing assistance to a shopper or other type of mobile device user **125** within a store **102**. The embodied system **100** includes a store server **104** suitable for detecting either an interaction between mobile device **110** and a store item **120** or another type of event associated with mobile device **110** and store item **120**. Store server **104** may respond to detecting the interaction or other type of event, by accessing a store planogram or other type of database **108**, which may be remotely

located or resident on server **104**. The depicted database **108** includes a data structure, identified as planogram **109**, indicative of a position of store item **120** within store **102**. Store server **104** may retrieve position data applicable to store item **120** from planogram **109** and estimate a position of user **125** within store **102** based on the retrieved data. Store server **104** may then use the estimate of the user's position to provide user **125** with information that is based, at least in part, on the estimated position. In various embodiments, the event associated with mobile device **110** and shopping item **120** may be communicated to store server **104** by a message from mobile device **110**.

[0040] Referring to FIG. **2**, selected elements of an embodiment of mobile device **110** are depicted. In the depicted embodiment, mobile device **110** includes a processor **201** having access to tangible computer readable storage media, collectively represented in FIG. **2** as storage **210**. Storage **210** may contain or include one or more software applications including an application identified as shopping assistant **212**. Storage **210** may further include one or more data structures including a data structure identified as ESL **214**. Mobile device **110** as shown in FIG. **2** further includes peripheral elements that are accessible to processor **201** including a scanner **250**, a display **204**, and keypad control elements **202**, which may implemented as hardware buttons, soft keys, or the like. Mobile device **110** as shown further includes a microphone **206**, a radio frequency (RF) module **230** suitable for establishing cellular communication, a camera **240**, a speaker **208**, and a wireless adapter **220** suitable for supporting communication with a wireless data network, e.g., a Bluetooth or WiFi network, that may be confined within store **102** and locations in close proximity to store **102**. Mobile device **110** as depicted in FIG. **2** may be characterized by its ability to support cellular communication including voice communication and text message communication as well as wireless data communication including Web communication, email communication, instant messaging communication, and the like. Mobile device **110** may include selected elements of commercially distributed smart phones including, as an example, an iPhone® brand phone from Apple, configured with the aforementioned devices.

[0041] Mobile device **110** may be utilized to participate in one or more of the following events: (i) scanning a code of a store item using scanner **250**, (ii) taking a picture or otherwise capture an image of a store item using camera **240**, (iii) detecting a radio frequency identification (RFID) of a store item using RF module **230**, or (iv) performing a user initiated modification of an ESL stored in storage **210** of mobile device **110** and maintained by shopping assistant **212**. The event may then be transmitted by mobile device **110** using wireless adapter **220** to server **104**. Information (including store location, promotional materials, store maps, directions, or requesting additional information from the user in order to assist with determining the user's location) may be provided to user **125** via display **204** or speaker **208** of mobile device **110**.

[0042] In some embodiments, disclosed embodiments may be implemented as methods of use and or computer software, both of which may be represented as flow diagrams where, in the case of computer software, the flow diagram blocks correspond to instructions embedded in a computer readable medium such as storage **210** of mobile device **110** or storage associated with store server **104**. As depicted in FIG. **3**, a disclosed method **300** includes detecting (block **302**) mobile device **110** upon entering store **102** and registering mobile device **110**, anonymously or non-anonymously (block **303**). Server **104** may extract or otherwise access (block **304**) an ESL from mobile device **110** and provide promotional materials, e.g., coupons, or other assistance to user **125** by way of mobile device **110**. When an interaction or another type of event associated with mobile device **110** and store item **120** occurs (block **306**), the event may be detected (Step **308**) by server **104**. Server **104** accesses or otherwise consults (block **310**) planogram **109** to approximate the location of user **125** based on the information provided as result of the detected event. Server **104** may then provide (block **312**) data or other information to user **125** via mobile device **110** based on the estimated location of user **125**. In some instances, store item **120** may be a stock item of the store available for sale or use by consumer/users and in other instances store item **120** may be a wireless transceiver affixed to a known position within store **102**.

[0043] Referring now to FIG. **4** and FIG. **5**, selected elements of embodiments of a system **400** and method **500** of leveraging ESLs to manage inventory are disclosed. In an embodiment depicted in FIG. **5**, method **500** includes enabling (block **510**) an end user to provide an ESL **214** to a network resource **420**. In some embodiments, the items contained in ESL **214** represent items that may be purchased in the future by the end user. The end user may maintain an ESL **214-1** on mobile device **110** and may separately, or in addition to, maintain an ESL **214-2** on computer **410**, which may represent a home computer of the end user. If maintained on both mobile device **110** and computer **410**, ESLs **214-1** and **214-2** may be automatically synchronized so that any revisions made to ESL **214-1** will be automatically reflected in ESL **214-2** and vice versa. Alternatively, the end user may download an application from network resource **420** or from another available resource which application is suitable for creating ESL **214**. The end user may provide ESL **214** to network resource **420** via network **415** by mobile device **110** and/or computer **410**. In addition, ESL **214** may be generated via an online interface to network resource **420**.

[0044] In the depicted embodiment, the end user may be incentivized (or induced or motivated) (block **515**) to provide ESL **214** to network resource **420**. Such incentivizing may include notifying the end user of sale events concerning items on the ESL or providing a coupon to the end user. In some embodiments, the coupon may be for at least one item on ESL **214**. In another embodiment, a store **102** or other retailer may be associated with network resource **420** and in such embodiment, network resource **420** may be implemented as a Web server portal of store **102** or such other retailer. Responsive to the end user providing ESL **214** to network resource **420** as determined in block **520**, ESL **214** is used by inventory management application **425** to predict and adjust (block **525**) future inventory needs.

[0045] Inventory management application **425** may be utilized to maintain information tracking items on ESL **214** versus items purchased by the end user so that when ESL **214** is used to predict future inventory needs, such predictions include predicting future levels of inventory based, at least in part, on the tracking information. In some embodiments, the tracking information may be obtained during predetermined intervals. In yet additional embodiments, the tracking information may be utilized to determine a likelihood of purchase factor for the end user. In the depicted subject matter, responsive to an item listed on the ESL not being in stock at the store,

information indicative of another store location where the item is in stock may be transmitted (block **530**) to the end user.

[0046] Referring now to FIGS. **6**, **7**, and **8**, an embodiment of a system **600** and method **700** for providing assistance to an end user or shopper **125** to locate items within store **102**. In the depicted embodiment, system **600** illustrates ESL **214** resident on mobile device **110**. In the disclosed embodiment of method **700**, when mobile device **110** is detected (block **710**) as being in proximity to store **102**, server **104** accesses (block **720**) ESL **214** in mobile device **110** and accesses (block **730**) store database **108**, which may include planogram **109** to generate (block **740**) guided shopping information **605** and provide (block **750**) to mobile device **110** for use by end user **125**.

[0047] In an alternative embodiment, upon detecting (block **820**) the presence of electronic shopping guide **214** in mobile device **110**, server **104** may expose (block **830**) database **108**, which may include planogram **109**, directly to shopping assistant **212** resident on mobile device **110** to provide (block **840**) guided shopping information **605**.

[0048] Guided shopping information **605** may include an image of a layout of store **102**, the location of the mobile device in store **102**, text based directions for navigating store **102** to locate the items, and/or the ESL sorted based on the location of the items in store **102**. In another embodiment, guided shopping information **605** may also include providing promotional content to mobile device **110** wherein the promotional content is determined in part by at least one of the items in ESL **214** and may include promotional content directed at an item located in proximity to an item in ESL **214**.

[0049] Turning now to FIG. **9**, FIG. **10**, FIG. **11**, and FIG. **12**, embodiments of systems and methods for updating a ESL and for the automated generation of ESL items pertaining to periodic service or maintenance tasks needed for home and office appliances and other assets is presented. The embodiments represented by FIG. **9** and FIG. **12** employ a mobile device **110** with an ESL **214** resident thereon. Mobile device **110** detects (block **1205**) a service request event **912** corresponding to an asset **910**. In response to detecting service request event **912** from asset **910**, shopping assistant **212** inserts, includes, or otherwise modifies (block **1210**) ESL **214** to include an item needed to take action on the service request. In one embodiment, the service request event may include a service request message **912** wirelessly transmitted by asset **910**. In another embodiment, mobile device **110** may send a query **914** to asset **910** from time to time to verify asset operation or to determine if a service event request has occurred. The service request event may also include a response **916** to a service request inquiry generated by mobile device **110**.

[0050] In some embodiments, emphasized in FIG. **10**, the asset may include a dumb asset **1005** such that the service request event includes a service request event **1012** generated periodically by a proxy **1010** for dumb asset **1005**. Proxy **1010** may reside on mobile device **110**, may reside on a computer (not shown), or may reside on, or proximate to, dumb asset **1005**. In embodiments emphasized in FIG. **11**, Asset **910** may be an automobile **1115** and may include a limited protocol interface **1110**, an interface that is non-compliant with protocols supported by mobile device **110**. In this case, a service request for the asset may be generated by a compliant protocol adapter **1105** connected to limited protocol interface **1110**. In one embodiment limited protocol interface **1110** may include an on board diagnostic (OBD) interface (such as OBD-II interface for an automobile). In some embodiments, adapter **1105** may be a Bluetooth adapter, a WiFi adapter, or another type of local wireless adapter.

[0051] Turning now to FIG. **13**, selected elements of a marketing method **1300** for providing an incentive for social network members to opt into a promotional program associated with a seller of goods or services are disclosed. Responsive to a first social network member (SNM) electronically opting in to a promotional program, the first SNM is provided with an additional incentive to identify (block **1305**) a second SNM as an opt in candidate to the promotional program. Each SNM may be provided (block **1310**) with an incentive to identify one or more additional SNMs as an opt in candidate to the promotional program. In the depicted embodiment, identifying an opt in candidate may include identifying (block **1315**) an email address, an instant messaging (IM) address, or a short messaging system (SMS) of the candidate.

[0052] In addition to the initial incentive to the first SNM, each SNM who participates may be provided with an incentive. In the depicted embodiment, providing incentives may include providing (block **1320**) a store coupon or a product coupon and may include additional advertising regarding the promotional program or other programs. In one embodiment, the value of the incentives may increase depending on the quantity of SNMs who participate in the promotional program. In some embodiments, the incentives and/or the value of the incentives may be limited to a predetermined period of time, a predetermined number of SNMs, a predetermined level of participation, or may be based on whether the seller or retailer desires to direct traffic to a brick and mortar store or to an online, web-based store. (Block **1320**) This information may be maintained and used to identify previous SNMs for inclusion in future promotional programs (Block **1330**).

[0053] As shown in FIG. **14**, server **104** of system **600** includes a processor **1402**, e.g., a central processing unit, a graphics processing unit, or both, and storage media **1401** that includes a main memory **1404** and a non-volatile memory **1406**. Disk drive unit **1416** and other components of storage media **1401** communicate with processor **1402** via bus **1408**. Disk drive unit **1416** includes a magnetic or solid state machine-readable medium **1422** that may have stored thereon one or more sets of instructions **1424** and data structures (not depicted) embodying or utilized by any one or more of the methodologies or functions described herein. The instructions **1424** may also reside, completely or at least partially, within the main memory **1404**, within non-volatile memory **1406**, within network interface device **1420**, and/or within the processor **1402** during execution thereof by server **104**. Server **104** may further include a video display unit **1410** (e.g., a television, a liquid crystal display or a cathode ray tube) on which to display information processed by server **104**). Server **104** also includes alphanumeric input device **1412** (e.g., a keyboard), user interface (UI) navigation device **1414** (e.g., a remote control device or a mouse), signal generation device **1418** (e.g., a speaker) and network interface device **1420**. Input device **1412** and/or UI navigation device **1414** (e.g., a remote control device) may include processors (not shown), and further memory (not shown).

[0054] Instructions **1424** may be transmitted or received over a network **1426** via network interface device **1420** using any one of a number of transfer protocols (e.g., broadcast transmissions, HTTP). While the machine-readable medium **1422** is depicted as a single medium, the term "machine-readable medium" should be construed as including a single

medium or multiple media (e.g., a centralized or distributed database, and/or associated caches and servers) that may store all or part of instructions **1424**. The term "machine-readable medium" shall also be taken to include any tangible medium that is capable of storing, encoding, or carrying a set of instructions (e.g. instructions **1424**) for execution by a machine (e.g., system **100**) and that cause the machine to perform any one or more of the methodologies or that is capable of storing, encoding, or carrying data structures utilized by or associated with such a set of instructions. The term "machine-readable medium" shall, accordingly, be taken to include but not be limited to solid-state memories, optical media, and magnetic media.

[0055] In accordance with some embodiments, system **600** and method **700** provide assistance to an end user or shopper **125** to locate items within store **102**. Accordingly, instructions **1424** include instructions for detecting a wireless device in proximity to a store, identifying items in an ESL resident in the wireless device, and accessing item location data to provide guided shopping information to the wireless device, wherein the guided shopping information facilitates navigation of the store to locate the ESL items.

[0056] To the maximum extent allowed by law, the scope of the present disclosure is to be determined by the broadest permissible interpretation of the following claims and their equivalents, and shall not be restricted or limited to the specific embodiments described in the foregoing detailed description.

What is claimed is:

1. A shopping facilitation method, comprising:

detecting a wireless device in proximity to a store;

identifying items in an electronic shopping list (ESL) resident in the wireless device; and

accessing item location data to provide guided shopping information to the wireless device, wherein the guided shopping information facilitates navigation of the store to locate the ESL items.

2. The method of claim **1**, wherein providing guided shopping information comprises sorting the ESL by item based on the item location data and providing the sorted ESL to the wireless device.

3. The method of claim **1**, wherein providing guided shopping information comprises providing an image of a layout of the store.

4. The method of claim **3**, wherein the image includes an indication of a location of an item in the ESL.

5. The method of claim **3**, wherein the image includes an indication of a location of the wireless device.

6. The method of claim **1**, wherein providing guided shopping information includes providing text based directions for navigating the store to locate items in the ESL.

7. The method of claim **1**, wherein said accessing comprises accessing a planogram of the store.

8. The method of claim **1**, further comprising providing promotional content to the wireless device wherein the promotional content is determined in part by at least one of the items in the ESL and the guided shopping information.

9. The method of claim **8**, wherein the promotional content is directed at an item located in proximity to an item in the ESL.

10. A system including processor and storage media accessible to the processor, configured to facilitate shopping, the system being operable for:

detecting a wireless device in proximity to a store;

identifying items in an electronic shopping list (ESL) resident in the wireless device; and

accessing item location data to provide guided shopping information to the wireless device, wherein the guided shopping information facilitates navigation of the store to locate the ESL items.

11. The system of claim **10**, wherein providing guided shopping information comprises sorting the ESL by item based on the item location data and providing the sorted ESL to the wireless device.

12. The system of claim **10**, wherein providing guided shopping information comprises providing an image of a layout of the store.

13. The system of claim **12**, wherein the image includes an indication of a location of an item in the ESL.

14. The system of claim **12**, wherein the image includes an indication of a location of the wireless device.

15. The system of claim **10**, wherein providing guided shopping information includes providing text based directions for navigating the store to locate items in the ESL.

16. The system of claim **10**, wherein said accessing comprises accessing a planogram of the store.

17. The system of claim **10**, further comprising providing promotional content to the wireless device wherein the promotional content is determined in part by at least one of the items in the ESL and the guided shopping information.

18. The system of claim **17**, wherein the promotional content is directed at an item located in proximity to an item in the ESL.

19. A computer readable memory media, including computer executable program instructions for facilitating shopping, said program instructions executable to:

detect a wireless device in proximity to a store;

identify a shopping application and an electronic shopping list (ESL) resident in the wireless device; and

provide the shopping application with access to item location data indicative of locations of ESL items within the store.

20. The memory media of claim **19**, further including program instructions executable to provide promotional content to the wireless device wherein the promotional content is determined in part by at least one of the items in the ESL and the item location data.

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