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- (54) Title: METHODS AND SYSTEMS FOR EFFICIENT RECYCLING PICK UP SERVICES

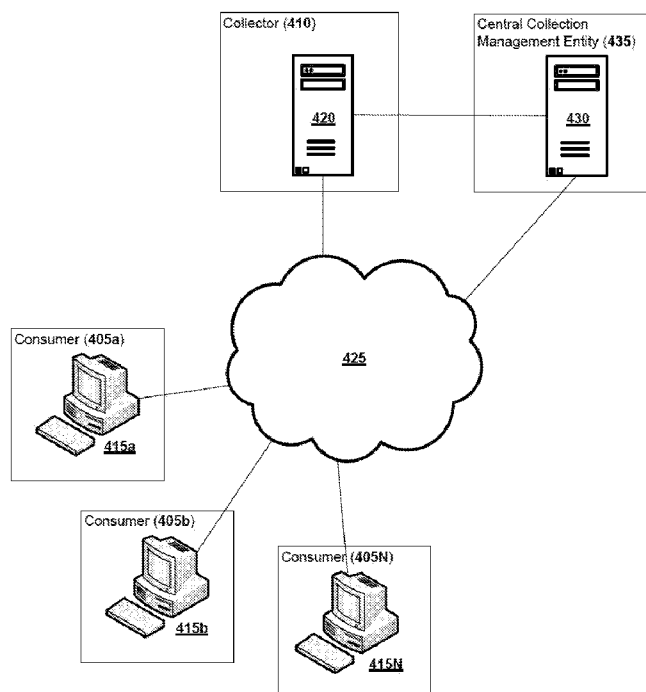


FIG. 4

- (57) Abstract: Methods and systems for collecting recyclables for recycling are disclosed. A collector may receive a collection request for recyclables for a consumer having an associated recycling account. The recycling account may include an address for the consumer. A determination as to whether an agent for the collector is within a threshold distance of the address may be made. The collector may fulfill the collection request in response to the agent for the collector being within the threshold distance of the address.



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METHODS AND SYSTEMS FOR EFFICIENT RECYCLING PICK UP SERVICES

BACKGROUND

[0001] Recycling is a process for processing used materials or waste into new products in order to prevent the waste of potentially useful materials, to reduce energy usage from the production of new materials, to reduce air pollution caused by the incineration of waste materials, or to reduce water pollution as a result of landfilling. Recycling can reduce the need for conventional waste disposal and lower greenhouse gas emissions as compared with virgin production of new materials.

[0002] Current recycling efforts have gradually gained traction at city, state and federal levels. However, recycling rates on different materials vary greatly because of the varied amount of extra effort required of consumers on materials to be recycled. For example, consumers cannot place electronic waste such as batteries, cell phones, tablets, and/or laptop computers into their recycle bins. Rather, special recycling centers are typically used for collecting electronic waste. As such, consumers must make a special trip to such a center in order to dispose of the electronic waste. In some cases, consumers are required to pay a disposal fee as part of this process as well. As a result, consumers are more likely to simply dispose of electronic waste in garbage bins than make an effort to recycle.

SUMMARY

[0003] In an embodiment, a method of collecting recyclables for recycling may include receiving, by a collector, a collection request for recyclables for a consumer having an associated recycling account that includes an address for the consumer, determining whether an agent for the collector is within a threshold distance of the address, and fulfilling, by the collector, the collection request in response to the agent for the collector being within the threshold distance of the address.

[0004] In an embodiment, a method of collecting recyclables for recycling may include receiving, by a collector, a plurality of collection requests for recyclables for one or more consumers, where each consumer has an associated recycling account that includes an address for the consumer, and, for each collection request, fulfilling, by the collector, the collection request in response to the number of collection requests proximate to the address for the consumer meeting or exceeding a threshold value.

[0005] In an embodiment, a method of collecting recyclables for recycling may include receiving, by a computing device, a collection request for recyclables for a consumer having an associated recycling account, where the collection request comprises a request to collect one or more recyclables and the account comprises an address for the consumer and a recycling credit, transmitting, by the computing device, the collection request to a collector, determining, by the computing device, a collection recycling credit based on one or more of an amount of recyclables collected and a type of recyclable collected as a result of the collection request, and providing, by the computing device, the collection recycling credit to the recycling account associated with the consumer in response to the collection request being fulfilled.

[0006] In an embodiment, a system for collecting recyclables for recycling may include a computing device and a non-transitory processor-readable storage medium in operable communication with the computing device. The processor-readable storage medium may contain one or more programming instructions that, when executed, cause the computing device to receive a collection request for recyclables for a consumer having an associated recycling account that includes an address for the consumer, determine whether an agent for the collector is within a threshold distance of the address, and transmit the collection request to the agent in response to the agent being within the threshold distance of the address.

[0007] In an embodiment, a system for collecting recyclables for recycling may include a computing device and a non-transitory processor-readable storage medium in operable communication with the computing device. The processor-readable storage medium may contain one or more programming instructions that, when executed, cause the computing device to receive a plurality of collection requests for recyclables for one or more consumers, where each consumer has an associated recycling account that includes an address for the consumer, determine a location for each of the plurality of collection requests, and in response to one or more of the plurality of collection requests being within a threshold distance of each other, transmit the one or more collection requests to a collector.

[0008] In an embodiment, a system for collecting recyclables for recycling may include a computing device and a non-transitory processor-readable storage medium in operable communication with the computing device. The processor-readable storage medium contains one or more programming instructions that, when executed, cause the computing device to receive a collection request for recyclables for a consumer having an associated recycling account, where the collection request comprises a request to collect one or more recyclables and the account comprises an address for the consumer and a recycling credit, transmit the collection request to a collector, determine a collection recycling credit based on one or more of an amount of recyclables collected and a type of recyclables to be collected as a result of the collection request, and provide the collection recycling credit to the recycling account associated with the consumer.

BRIEF DESCRIPTION OF THE FIGURES

[0009] FIG. 1 depicts a flow diagram for an illustrative method of collecting recyclables for recycling according to an embodiment.

[0010] FIG. 2 depicts a flow diagram for an alternate illustrative method of collecting recyclables for recycling according to an embodiment.

[0011] FIG. 3 depicts a flow diagram for yet another alternate illustrative method of collecting recyclables for recycling according to an embodiment.

[0012] FIG. 4 depicts a block diagram for an illustrative system for collecting recyclables for recycling according to an embodiment.

[0013] FIG. 5 depicts a block diagram of illustrative internal hardware that may be used to contain or implement program instructions according to an embodiment.

DETAILED DESCRIPTION

[0014] This disclosure is not limited to the particular systems, devices and methods described, as these may vary. The terminology used in the description is for the purpose of describing the particular versions or embodiments only, and is not intended to limit the scope.

[0015] As used in this document, the singular forms “a,” “an,” and “the” include plural references unless the context clearly dictates otherwise. Unless defined otherwise, all technical and scientific terms used herein have the same meanings as commonly understood by one of ordinary skill in the art. Nothing in this disclosure is to be construed as an admission that the embodiments described in this disclosure are not entitled to antedate such disclosure by virtue of prior invention. As used in this document, the term “comprising” means “including, but not limited to.”

[0016] The following terms shall have, for the purposes of this application, the respective meanings set forth below.

[0017] An “agent” refers to an entity or individual that acts on behalf of another party. For example, an agent for a collector may include an entity or individual that acts on behalf of the collector to collect or receive recyclables. An agent for a collector may be a collaborator, a contractor, or an employee of the collector.

[0018] A “collection recycling credit” refers to a credit provided to a consumer for recycling a material. A collection recycling credit may correspond to a cash refund or reward, a tax credit, a coupon, a rebate, a credit, a discount or any other incentive provided to an entity or individual for recycling a recyclable.

[0019] A “collector” refers to an entity or individual that receives a recyclable for recycling. A collector may include a delivery company, a logistics company or a recyclables collector.

[0020] A “recyclable” refers to a material, a product, a container, or other item that is capable of being recycled. Recyclables may include, without limitation, electronic waste, such as batteries, electronic components, computers, portable electronic devices, cell phones, tablets, monitors, peripherals, printers, optical disks, furniture, clothes, bottles, can, container, home appliances such as dish washer, heater, kitchen ranges, refrigerators, washer, dryer, oven, and air conditioner, food (before or after expiration date), books, optical disks such as CDs, DVDs, and Blu-rays, and/or the like. Recyclables may further include, without limitation, plastics, polymers such as polyethylene terephthalate (PET), polyethylene, polyvinyl chloride (PVC), polypropylene, polystyrene, polytetrafluoroethylene (PTFE), polyurethane, polyimide, polyacrylamide, starch-based polymers, protein based polymers, polysaccharides, polylactic acid (PLA), polymer composites, cellulosic materials, lignocellulosic materials, fabrics, metals, such as aluminum, brass, copper, iron, steel, zinc, silver, rare earth metals, and/or the like, alloys, cardboard, glass, paper, plywood, wood, motor oil, tires, and vehicular batteries. Additional recyclable materials may also be considered within the scope of this disclosure and may be recycled according to the teachings described herein.

[0021] A “recycling account” refers to an account associated with an individual or entity account holder that is used to record recycling activities associated with the account

holder. The recycling account may include an address associated with the account holder and a recycling credit based on the account holder's recycling activities.

[0022] This disclosure identifies methods and systems for determining a recycling credit for a recycled material. In particular, this disclosure identifies methods and systems for determining a recycling credit for a recycled material produced by a materials producer or manufacturer.

[0023] FIG. 1 depicts a flow diagram for an illustrative method of collecting recyclables for recycling according to an embodiment. As shown in FIG. 1, a collector may receive **105** a collection request for recyclables for a consumer having an associated recycling account. The recycling account may include an address for the consumer. In an embodiment, the recycling account may be an account associated with electronic waste recycling activities by the consumer. For example, the recycling account may record information regarding electronic waste that has been recycled by the consumer, such as an amount of recycled electronic waste, types of recycled electronic waste, a chemical or material composition of recycled electronic waste, a monetary value associated with recycled electronic waste and/or the like.

[0024] In an embodiment, the collection request may be received **105** by a computing device associated with the collector. In an embodiment, the collection request may include a request to collect electronic waste. In an embodiment, the collector may include a recyclables collector. In an embodiment, the collector may include a delivery company or a logistics company.

[0025] A determination may be made **110** as to whether an agent for the collector is within a threshold distance of the address of the consumer. In an embodiment, a computing device may determine **110** the distance between the address of the consumer and one or more agents for a collector. In an embodiment, an agent of the collector may include a

representative of a delivery company, a representative of a logistics company, a delivery company or a logistics company.

[0026] In an embodiment, an agent for the collector may be selected **115** to fulfill the collection request. In an embodiment, an agent for the collector having a shortest distance between the agent's location and the consumer's address may be selected **115**. Other methods of selecting **115** an agent may be performed within the scope of this disclosure.

[0027] The collector may fulfill **120** the collection request in response to the agent for the collector being within a threshold distance of the address. Fulfillment **120** of the request may be performed by having the collector or an agent for the collector retrieve recyclables from the consumer in response to the collection request.

[0028] In an embodiment, the recycling account may include a recycling credit associated with the consumer. In such an embodiment, a collection recycling credit may be provided **125** to the recycling account for the consumer. The collection recycling credit may be based on one or more of an amount of recyclables collected and a type of recyclables collected as a result of the collection request. The collection recycling credit may be added **130** to the recycling credit associated with the recycling account for the consumer. In an embodiment, the collection recycling credit may include one or more of a coupon, cash, a tax credit and a rebate. In an embodiment, the collection recycling credit may include a credit applied to one or more of a credit card, a debit card and a value card of the consumer. In an embodiment, the collection recycling credit may include a discount applied to a purchase from a merchant.

[0029] FIG. 2 depicts a flow diagram for an alternate illustrative method of collecting recyclables for recycling according to an embodiment. As shown in FIG. 2, a collector may receive **205** a plurality of collection requests for recyclables for one or more

consumers. Each consumer may have an associated recycling account. Each recycling account may include an address for the associated consumer. In an embodiment, each consumer's recycling account may be accessible by the collector. In an embodiment, each recycling account may be an account associated with electronic waste recycling activities by the consumer. For example, the recycling account may record information regarding electronic waste that has been recycled by the consumer, such as an amount of recycled electronic waste, types of recycled electronic waste, a chemical or material composition of recycled electronic waste, a monetary value associated with recycled electronic waste and/or the like. In an embodiment, each recycling account may further include a recycling credit associated with the associated consumer. For example, the recycling credit may denote an amount of credit that the consumer has accumulated for past recycling activities and has not redeemed to date or within a prescribed time period.

[0030] In an embodiment, each of the plurality of collection requests may be received **205** by a computing device associated with the collector. In an embodiment, the collection requests may each include a request to collect electronic waste. In an embodiment, the collector may be a recyclables collector. In an embodiment, the collector may be a delivery company or a logistics company. In an embodiment, the collector may be a retailer. In an embodiment, the collector may be a manufacturer.

[0031] The collector may determine **210** a location for each of the collection requests. In an embodiment, the location may be determined **210** based on the address associated with the consumer making each collection request. In an embodiment, one or more of the collection requests may include a location at which the collection is to take place.

[0032] For each collection request, the collector may fulfill **215** the collection request in response to the number of collection requests proximate to the address for the consumer meeting or exceeding a threshold value. For example, a minimum of five

collection requests are required before the collector fulfills **215** the collection request. In an embodiment, the collector may fulfill **215** the collection requests only if the collection requests are within a particular radius of each other, such as within five kilometers. In an embodiment, the collector may fulfill **215** the collection requests only if the collection requests can be completed within an identified amount of time. In an alternate embodiment, the collector may fulfill **215** the collection requests only if the average time to complete the collection requests is less than a threshold value, such as, without limitation, 10 minutes per collection request. In an embodiment, the collector may fulfill **215** the collection requests only if the collection requests can be completed by travelling less than an identified distance. In an alternate embodiment, the collector may fulfill **215** the collection requests only if the distance to travel per collection request is less than an identified distance. Alternate parameters for determining when to fulfill collection requests may also be performed within the scope of this disclosure.

[0033] In an embodiment, a collection recycling credit may be provided **220** for each collection request. The collection recycling credit may be provided **220** to the recycling account associated with the consumer that made the collection request. The collection recycling credit may be based on one or more of an amount of recyclables collected and a type of recyclables collected as a result of the collection request. The collection recycling credit may be added **225** to the recycling credit associated with the recycling account for the consumer. In an embodiment, the collection recycling credit may include one or more of a coupon, cash, a tax credit and a rebate. In an embodiment, the collection recycling credit may include a credit applied to one or more of a credit card, a debit card and a value card of the consumer that made the collection request. In an embodiment, the collection recycling credit may include a discount applied to a purchase from a merchant.

[0034] FIG. 3 depicts a flow diagram for yet another alternate illustrative method of collecting recyclables for recycling according to an embodiment. As shown in FIG. 3, a computing device may receive **305** a collection request for recyclables for a consumer having an associated recycling account. The collection request may include a request to collect one or more recyclables. The recycling account may include an address for the consumer and a recycling credit. In an embodiment, the recycling account may include an electronic waste account. In an embodiment, the recycling account may be an account associated with electronic waste recycling activities by the consumer. For example, the recycling account may record information regarding electronic waste that has been recycled by the consumer, such as an amount of recycled electronic waste, types of recycled electronic waste, a chemical or material composition of recycled electronic waste, a monetary value associated with recycled electronic waste and/or the like. In an embodiment, the collection request may include a request to collect electronic waste.

[0035] The computing device may transmit **310** the collection request to a collector. In an embodiment, the collector may include a recyclables collector. In an embodiment, the collector may include a delivery company or a logistics company.

[0036] The computing device may determine **315** a collection recycling credit. In an embodiment, the collection recycling credit may be determined **315** based on one or more of an amount of recyclables collected and a type of recyclables collected as a result of the collection request.

[0037] The computing device may provide **320** a collection recycling credit to the recycling account associated with the consumer in response to the collection request being fulfilled. For example, the computing device may receive a fulfillment notification from the collector after the collection request has been fulfilled. In an alternate embodiment, fulfillment of the collection request may be identified based on a tracking system associated

with the collector. For example, when the collector is co-located with the address associated with the consumer, the computing device may identify fulfillment of the collection request. Other methods of determining whether a collection request has been fulfilled may be performed within the scope of this disclosure.

[0038] In an embodiment, the collection recycling credit may include one or more of a coupon, cash, an account credit, a tax credit and a rebate. In an embodiment, the collection recycling credit may include a credit applied to one or more of a credit card, a debit card and a value card of the consumer. In an embodiment, the collection recycling credit may include a discount applied to a purchase from a merchant.

[0039] FIG. 4 depicts a block diagram for an illustrative system for collecting recyclables for recycling according to an embodiment. As shown in FIG. 4, a plurality of consumers, such as **405a-N**, may be resident within a geographical location. One or more collectors, such as **410**, may service the geographical location with respect to collecting recyclables from the consumers. Each of the consumers may have a communication device, such as **415a-N**. The communication devices **415a-N** may be used to communicate collection requests. In an embodiment, the collection requests may be transmitted directly to a communication device, such as **420**, associated with the collector **410** via a communication network, such as **425**. Upon receiving the collection request, and possibly other collection requests, the collector may collect the recyclables from the one or more consumers **405a-N** that made a collection request.

[0040] In an alternate embodiment, the collection request may be transmitted to a communication device **430** associated with a central collection management entity **435** operated by, for example and without limitation, a recycling facility, a governmental agency, or the like. The central collection management entity **435** may select a collector **410** from one or more collectors to fulfill the one or more collection requests. Selection of the collector

410 to perform the collection request may be performed based upon, for example, proximity of the collector to one or more consumers, such as **405a-N**, from which collection requests have been received. Additional and/or alternate systems for collecting recyclables may be used within the scope of this disclosure.

[0041] FIG. 5 depicts a block diagram of exemplary internal hardware that may be used to contain or implement program instructions, such as the process steps discussed above in reference to FIGS. 1-3, arranged in accordance with at least some embodiments described herein. A bus **500** serves as the main information highway interconnecting the other illustrated components of the hardware. CPU **505** is the central processing unit of the system, performing calculations and logic operations required to execute a program. CPU **505**, alone or in conjunction with one or more of the other elements disclosed in FIG. 5, is an exemplary processing device, computing device or processor as such terms are used within this disclosure. Read only memory (ROM) **510** and random access memory (RAM) **515** constitute exemplary memory devices (i.e., non-transitory processor-readable storage media).

[0042] A controller **520** interfaces with one or more optional memory devices **525** to the system bus **500**. These memory devices **525** may include, for example, an external or internal DVD drive, a CD ROM drive, a hard drive, flash memory, a USB drive or the like. As indicated previously, these various drives and controllers are optional devices.

[0043] Program instructions, software or interactive modules for providing the interface and performing any querying or analysis associated with one or more data sets may be stored in the ROM **510** and/or the RAM **515**. Optionally, the program instructions may be stored on a tangible computer readable medium such as a compact disk, a digital disk, flash memory, a memory card, a USB drive, an optical disc storage medium, such as a Blu-ray™ disc, and/or other non-transitory storage media.

[0044] An optional display interface **530** may permit information from the bus **500** to be displayed on the display **535** in audio, visual, graphic or alphanumeric format. Communication with external devices, such as a print device, may occur using various communication ports **540**. An exemplary communication port **540** may be attached to a communications network, such as the Internet or an intranet.

[0045] The hardware may also include an interface **545** which allows for receipt of data from input devices such as a keyboard **550** or other input device **555** such as a mouse, a joystick, a touch screen, a remote control, a pointing device, a video input device and/or an audio input device.

EXAMPLES

EXAMPLE 1: Collection Request via Central Authority

[0046] Collection requests will be received by a computing device located at a central authority. Collection requests will be entered either automatically if submitted by a computing device or manually if received by telephonic or written correspondence. Upon receiving a collection request, the computing device at the central authority will determine a collector that is equipped to handle the collection request. As part of this process, the computing device will determine the proximity of the collector to the location at which the recyclables are to be collected, although other factors will also be considered (type of recyclable to be collected, other collection requests currently being handled by a collector, etc.). The computing device will then send the collection request to the collector for processing. The collector will perform the collection and provide feedback to the central authority regarding the fulfillment of the collection request. As part of the feedback, the collector will provide information regarding the amount and types of recyclables collected as a result of the collection request. The computing device at the central authority will use this feedback information to determine a collection recycling credit to be added to an account

associated with the consumer making the collection request. The collection recycling credit will be summed with any prior stored recycling credit to provide an updated recycling credit for the consumer.

EXAMPLE 2: Collection Requests via Collector

[0047] A collector will receive a plurality of collection requests from one or more consumers. The collection requests will be received directly from the one or more consumers and/or from a central authority. Each collection request will include an address or location associated with a requested collection. The collector will determine whether a sufficient number of collection requests occur to warrant sending an agent to fulfill the collection requests. This will be done by determining an amount of time required to fulfill the collection requests and/or proximity of the collection requests to each other. For example, if five collection requests are made within a one kilometer radius of each other, the collector will send an agent to fulfill the collection requests. If a sufficient number of collection requests are within a geographic location to warrant sending an agent, the agent will be sent to fulfill the collection requests. As the collection requests are fulfilled (or after all of the collection requests are fulfilled), the collector will update information pertaining to a recycling credit in each account associated with a fulfilled collection request. Particularly, the collector will determine a collection recycling credit to be added to an account associated with a consumer making the collection request. The collection recycling credit will be summed with any prior stored recycling credit to provide an updated recycling credit for the consumer.

EXAMPLE 3: Use of Recycling Account by Consumer

[0048] A consumer will be assigned or will sign up for a recycling account with a central authority or a collector. As part of the account formation process, the consumer will

provide an address at which collections are to take place. In addition, the recycling account will store a recycling credit. The consumer will then submit a collection request to the entity with which the recycling account was formed. A collector will be sent to collect recyclables associated with the collection request from the consumer. The recycling credit stored in the recycling account will be updated based on the amount and type of recyclables received by the collector as part of the collection request. For example, if the recycling account for a consumer had a \$10 recycling credit before the collection request, and recyclables worth a \$15 credit were received in fulfillment of the collection request, the recycling account would be updated to reflect a \$25 recycling credit. The consumer will then use the recycling credit to purchase goods or services from one or more participating vendors.

[0049] In the above detailed description, reference is made to the accompanying drawings, which form a part hereof. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be used, and other changes may be made, without departing from the spirit or scope of the subject matter presented herein. It will be readily understood that the aspects of the present disclosure, as generally described herein, and illustrated in the Figures, can be arranged, substituted, combined, separated, and designed in a wide variety of different configurations, all of which are explicitly contemplated herein.

[0050] The present disclosure is not to be limited in terms of the particular embodiments described in this application, which are intended as illustrations of various aspects. Many modifications and variations can be made without departing from its spirit and scope, as will be apparent to those skilled in the art. Functionally equivalent methods and apparatuses within the scope of the disclosure, in addition to those enumerated herein, will be

apparent to those skilled in the art from the foregoing descriptions. Such modifications and variations are intended to fall within the scope of the appended claims. The present disclosure is to be limited only by the terms of the appended claims, along with the full scope of equivalents to which such claims are entitled. It is to be understood that this disclosure is not limited to particular methods, reagents, compounds, compositions or biological systems, which can, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting.

[0051] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0052] It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (*e.g.*, bodies of the appended claims) are generally intended as “open” terms (*e.g.*, the term “including” should be interpreted as “including but not limited to,” the term “having” should be interpreted as “having at least,” the term “includes” should be interpreted as “includes but is not limited to,” etc.). While various compositions, methods, and devices are described in terms of “comprising” various components or steps (interpreted as meaning “including, but not limited to”), the compositions, methods, and devices can also “consist essentially of” or “consist of” the various components and steps, and such terminology should be interpreted as defining essentially closed-member groups. It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases “at least one” and “one or more” to introduce claim recitations.

However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles "a" or "an" limits any particular claim containing such introduced claim recitation to embodiments containing only one such recitation, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an" (*e.g.*, "a" and/or "an" should be interpreted to mean "at least one" or "one or more"); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should be interpreted to mean at least the recited number (*e.g.*, the bare recitation of "two recitations," without other modifiers, means at least two recitations, or two or more recitations). Furthermore, in those instances where a convention analogous to "at least one of A, B, and C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (*e.g.*, "a system having at least one of A, B, and C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to "at least one of A, B, or C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (*e.g.*, "a system having at least one of A, B, or C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms. For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B."

[0053] In addition, where features or aspects of the disclosure are described in terms of Markush groups, those skilled in the art will recognize that the disclosure is also thereby described in terms of any individual member or subgroup of members of the Markush group.

[0054] As will be understood by one skilled in the art, for any and all purposes, such as in terms of providing a written description, all ranges disclosed herein also encompass any and all possible subranges and combinations of subranges thereof. Any listed range can be easily recognized as sufficiently describing and enabling the same range being broken down into at least equal halves, thirds, quarters, fifths, tenths, etc. As a non-limiting example, each range discussed herein can be readily broken down into a lower third, middle third and upper third, etc. As will also be understood by one skilled in the art all language such as “up to,” “at least,” and the like include the number recited and refer to ranges which can be subsequently broken down into subranges as discussed above. Finally, as will be understood by one skilled in the art, a range includes each individual member. Thus, for example, a group having 1-3 cells refers to groups having 1, 2, or 3 cells. Similarly, a group having 1-5 cells refers to groups having 1, 2, 3, 4, or 5 cells, and so forth.

[0055] Various of the above-disclosed and other features and functions, or alternatives thereof, may be combined into many other different systems or applications. Various presently unforeseen or unanticipated alternatives, modifications, variations or improvements therein may be subsequently made by those skilled in the art, each of which is also intended to be encompassed by the disclosed embodiments.

CLAIMS*What Is Claimed Is:*

1. A method of collecting recyclables for recycling, the method comprising:

receiving, by a collector, a collection request for recyclables for a consumer having an associated recycling account, wherein the recycling account comprises an address for the consumer;

determining whether an agent for the collector is within a threshold distance of the address; and

fulfilling, by the collector, the collection request in response to the agent for the collector being within the threshold distance of the address.
2. The method of claim 1, further comprising selecting the agent for the collector to fulfill the collection request.
3. The method of claim 2, wherein selecting the agent comprises selecting the agent having a shortest distance between the agent's location and the address.
4. The method of claim 1, wherein the recycling account comprises an electronic waste account.
5. The method of claim 1, wherein the collection request comprises a request to collect electronic waste.
6. The method of claim 1, wherein the recycling account further comprises a recycling credit associated with the consumer.
7. The method of claim 6, further comprising:

providing a collection recycling credit to the recycling account for the consumer, wherein the collection recycling credit is based on one or more of an amount of recyclables collected and a type of recyclable collected as a result of the collection request; and

adding the collection recycling credit to the recycling credit associated with the recycling account for the consumer.

8. The method of claim 6, wherein the collection recycling credit comprises one or more of a coupon, cash, a tax credit, and a rebate.

9. The method of claim 6, wherein the collection recycling credit comprises a credit applied to one or more of a credit card of the consumer, a debit card of the consumer, and a value card of the consumer.

10. The method of claim 6, wherein the collection recycling credit comprises a discount applied to a purchase from a merchant.

11. The method of claim 1, wherein the collector comprises a recyclables collector.

12. The method of claim 1, wherein the collector comprises a delivery company or a logistics company.

13. The method of claim 1, wherein the agent comprises a representative of a delivery company, a representative of a logistics company, a delivery company or a logistics company.

14. A method of collecting recyclables for recycling, the method comprising:

receiving, by a collector, a plurality of collection requests for recyclables for one or more consumers, wherein each consumer has an associated recycling account, wherein the recycling account associated with each consumer comprises an address for the consumer; and

for each collection request, fulfilling, by the collector, the collection request in response to the number of collection requests proximate to the address for the consumer meeting or exceeding a threshold value.

15. The method of claim 14, wherein each recycling account comprises an electronic waste account.

16. The method of claim 14, wherein the collection request comprises a request to collect electronic waste.

17. The method of claim 14, wherein each recycling account further comprises a recycling credit associated with the associated consumer.

18. The method of claim 17, further comprising:

for each collection request, providing a collection recycling credit to the associated recycling account for the associated consumer, wherein the collection recycling credit is based on one or more of the amount of recyclables collected and the type of recyclable collected as a result of the collection request, wherein the collection recycling credit is added to the recycling credit for the associated consumer.

19. The method of claim 17, wherein the collection recycling credit comprises one or more of a coupon, cash, a tax credit, and a rebate.

20. The method of claim 17, wherein the collection recycling credit comprises a credit applied to one or more of a credit card of the associated consumer, a debit card of the associated consumer, and a value card of the associated consumer.

21. The method of claim 17, wherein the collection recycling credit comprises a discount applied to a purchase from a merchant.

22. The method of claim 14, wherein the collector comprises a recyclables collector.

23. The method of claim 14, wherein the collector comprises a delivery company or a logistics company.

24. A method of collecting recyclables for recycling, the method comprising:

receiving, by a computing device, a collection request for recyclables for a consumer having an associated recycling account, wherein the collection request comprises a request to collect one or more recyclables, wherein the recycling account comprises an address for the consumer and a recycling credit;

transmitting, by the computing device, the collection request to a collector;

determining, by the computing device, a collection recycling credit based on one or more of an amount of recyclables collected and a type of recyclable collected as a result of the collection request; and

providing, by the computing device, the collection recycling credit to the recycling account associated with the consumer in response to the collection request being fulfilled.

25. The method of claim 24, wherein the recycling account comprises an electronic waste account.

26. The method of claim 24, wherein the collection request comprises a request to collect electronic waste.

27. The method of claim 24, wherein the collection recycling credit comprises one or more of a coupon, cash, a tax credit, and a rebate.

28. The method of claim 24, wherein the collection recycling credit comprises a credit applied to one or more of a credit card of the associated consumer, a debit card of the associated consumer, and a value card of the associated consumer.

29. The method of claim 24, wherein the collection recycling credit comprises a discount applied to a purchase from a merchant.

30. The method of claim 24, wherein the collector comprises a recyclables collector.

31. The method of claim 24, wherein the collector comprises a delivery company or a logistics company.

32. A system for collecting recyclables for recycling, the system comprising:

a computing device; and

a non-transitory processor-readable storage medium in operable communication with the computing device, wherein the processor-readable storage medium contains one or more programming instructions that, when executed, cause the computing device to:

receive a collection request for recyclables for a consumer having an associated recycling account, wherein the recycling account comprises an address for the consumer,

determine whether an agent for the collector is within a threshold distance of the address, and

transmit the collection request to the agent in response to the agent being within the threshold distance of the address.

33. The system of claim 32, wherein the processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the computing device to select the agent for the collector to fulfill the collection request.

34. The system of claim 33, wherein the one or more programming instructions that, when executed, cause the computing device to select the agent comprise one or more programming instructions that, when executed, cause the computing device to select the agent having a shortest distance between the agent's location and the address.

35. The system of claim 32, wherein the recycling account comprises an electronic waste account.

36. The system of claim 32, wherein the collection request comprises a request to collect electronic waste.

37. The system of claim 32, wherein the recycling account further comprises a recycling credit associated with the consumer.

38. The system of claim 32, wherein the processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the computing device to:

provide a collection recycling credit to the recycling account for the consumer, wherein the collection recycling credit is based on one or more of an amount of

recyclables collected and a type of recyclable collected as a result of the collection request.

39. The system of claim 38, wherein the one or more programming instructions that, when executed, cause the computing device to provide a collection recycling credit to the recycling account for the consumer comprise one or more programming instructions that, when executed, cause the computing device to add the collection recycling credit to the recycling credit associated with the recycling account.

40. The system of claim 38, wherein the collection recycling credit comprises one or more of a coupon, cash, a tax credit, and a rebate.

41. The system of claim 38, wherein the collection recycling credit comprises a credit applied to one or more of a credit card of the consumer, a debit card of the consumer, and a value card of the consumer.

42. The system of claim 38, wherein the collection recycling credit comprises a discount applied to a purchase from a merchant.

43. The system of claim 32, wherein the collector comprises a recyclables collector.

44. The system of claim 32, wherein the collector comprises a delivery company or a logistics company.

45. The system of claim 32, wherein the agent comprises a representative of a delivery company, a representative of a logistics company, a delivery company or a logistics company.

46. A system for collecting recyclables for recycling, the system comprising:

a computing device; and

a non-transitory processor-readable storage medium in operable communication with the computing device, wherein the processor-readable storage medium contains one or more programming instructions that, when executed, cause the computing device to:

receive a plurality of collection requests for recyclables for one or more consumers, wherein each consumer has an associated recycling account, wherein the recycling account associated with each consumer comprises an address for the consumer,

determine a location for each of the plurality of collection requests, and

in response to one or more of the plurality of collection requests being within a threshold distance of each other, transmit the one or more collection requests to a collector.

47. The system of claim 46, wherein each recycling account comprises an electronic waste account.

48. The system of claim 46, wherein the collection request comprises a request to collect electronic waste.

49. The system of claim 46, wherein each recycling account further comprises a recycling credit associated with the associated consumer.

50. The system of claim 49, wherein the processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the computing device to:

provide, for each of the one or more collection requests, a collection recycling credit to the associated recycling account for the associated consumer, wherein the

collection recycling credit is based on one or more of the amount of recyclables collected and the type of recyclable collected as a result of the collection request.

51. The system of claim 50, wherein the one or more programming instructions that, when executed, cause the computing device to provide a collection recycling credit for each of the one or more collection requests comprise one or more programming instructions that, when executed, cause the computing device to add the collection recycling credit to the recycling credit associated with the recycling account for each of the one or more collection requests.

52. The system of claim 49, wherein the collection recycling credit comprises one or more of a coupon, cash, a tax credit, and a rebate.

53. The system of claim 49, wherein the collection recycling credit comprises a credit applied to one or more of a credit card of the associated consumer, a debit card of the associated consumer, and a value card of the associated consumer.

54. The system of claim 49, wherein the collection recycling credit comprises a discount applied to a purchase from a merchant.

55. The system of claim 46, wherein the collector comprises a recyclables collector.

56. The system of claim 46, wherein the collector comprises a delivery company or a logistics company.

57. A system for collecting recyclables for recycling, the system comprising:

a computing device; and

a non-transitory processor-readable storage medium in operable communication with the computing device, wherein the processor-readable storage medium contains one or more programming instructions that, when executed, cause the computing device to:

receive a collection request for recyclables for a consumer having an associated recycling account, wherein the collection request comprises a request to collect one or more recyclables, wherein the recycling account comprises an address for the consumer and a recycling credit,

transmit the collection request to a collector,

determine a collection recycling credit based on one or more of an amount of recyclables collected and a type of recyclables to be collected as a result of the collection request, and

provide the collection recycling credit to the recycling account associated with the consumer.

58. The system of claim 57, wherein the recycling account comprises an electronic waste account.

59. The system of claim 57, wherein the collection request comprises a request to collect electronic waste.

60. The system of claim 57, wherein the collection recycling credit comprises one or more of a coupon, cash, a tax credit, and a rebate.

61. The system of claim 57, wherein the collection recycling credit comprises a credit applied to one or more of a credit card of the associated consumer, a debit card of the associated consumer, and a value card of the associated consumer.

62. The system of claim 57, wherein the collection recycling credit comprises a discount applied to a purchase from a merchant.

63. The system of claim 57, wherein the collector comprises a recyclables collector.

64. The system of claim 57, wherein the collector comprises a delivery company or a logistics company.

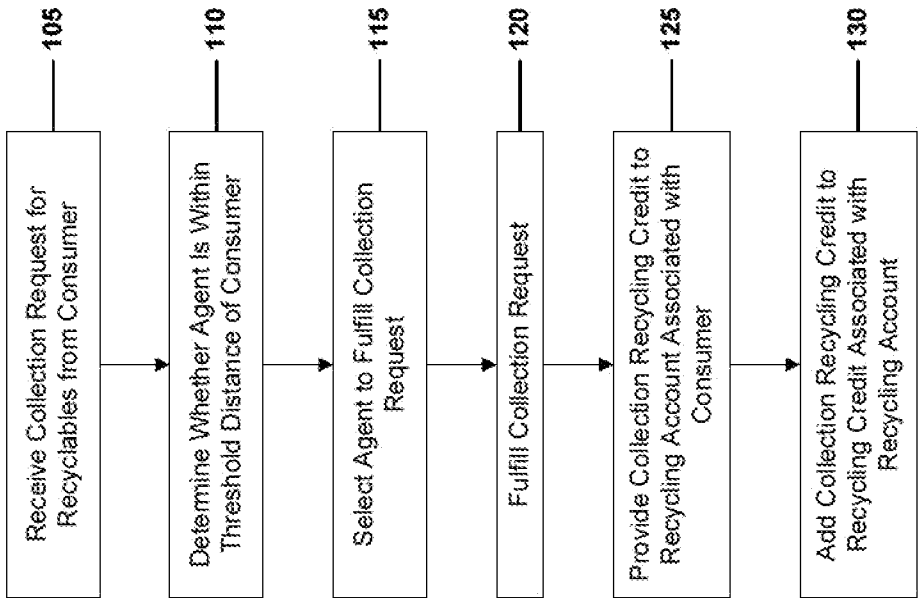


FIG. 1

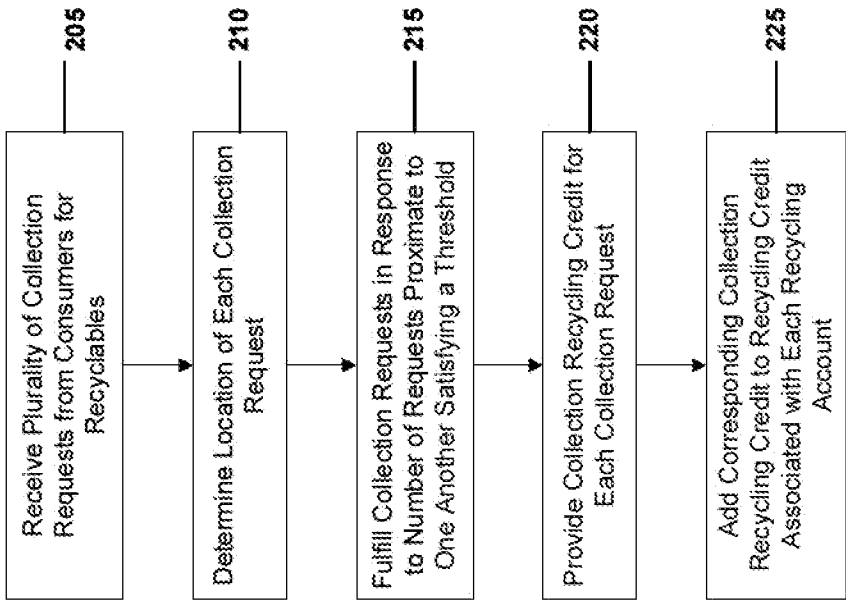


FIG. 2

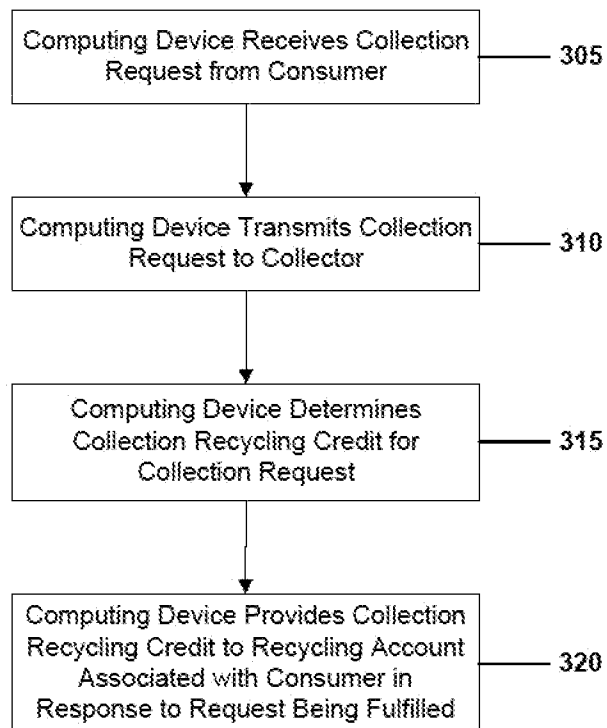


FIG. 3

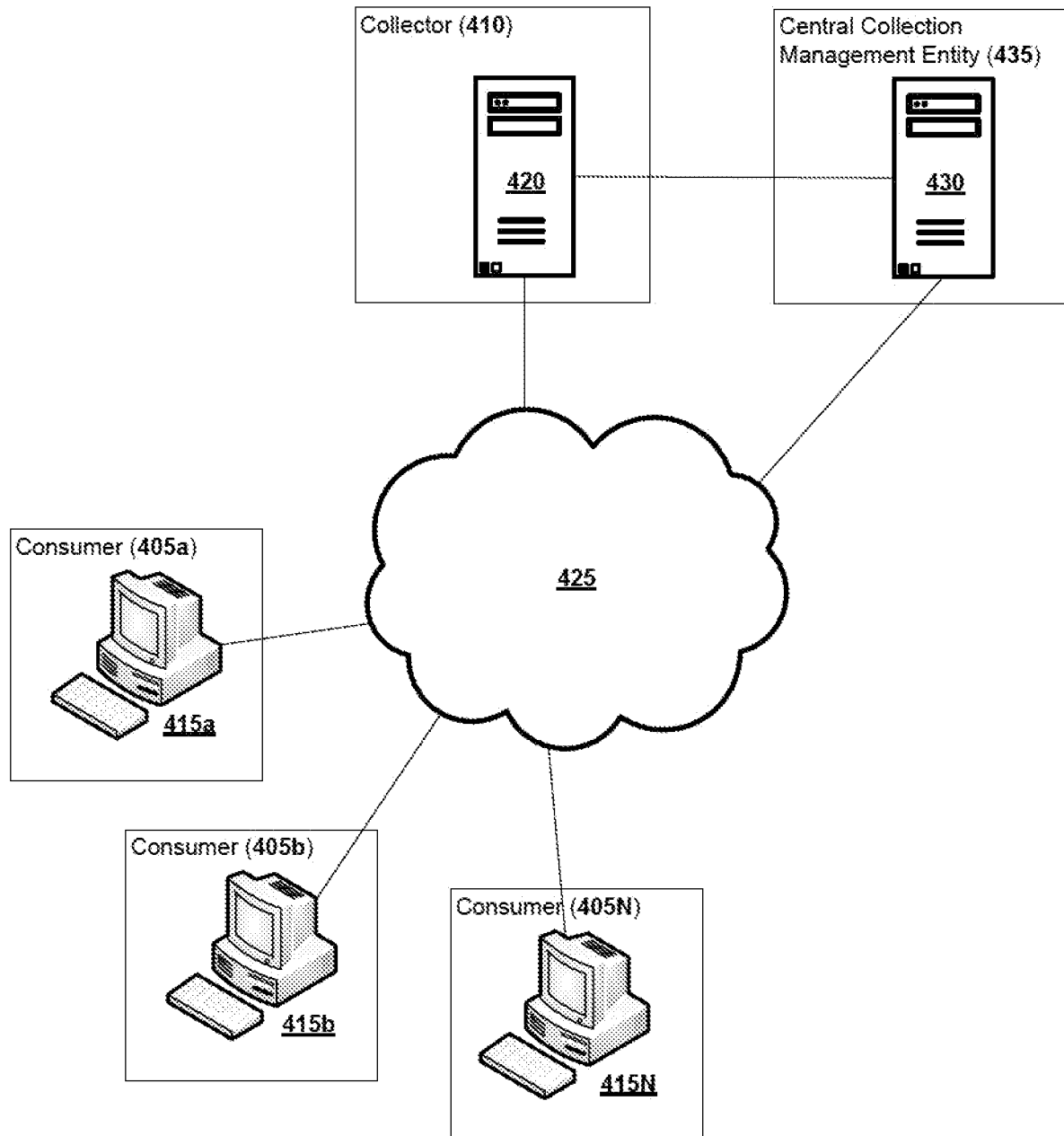


FIG. 4

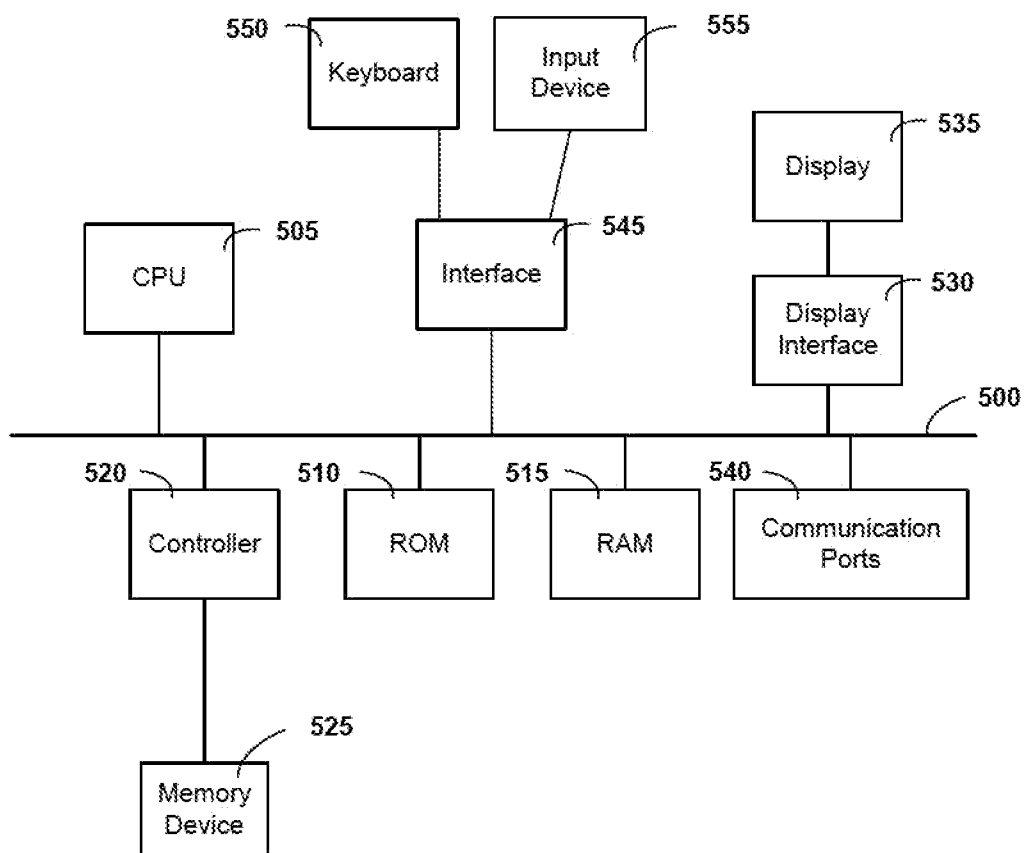


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/60929

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06Q 10/00 (2012.01)

USPC - 705/308

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

USPC: 705/308

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 705/1.1, 14.1, 14.11, 306, 308 (text search - see terms below)

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

PatBase; PubWEST(USPT,PGPB,EPAB,JPAB); Google

Search Terms: recycle, request, order, collection, pickup, threshold, distance, account, customer, credit, electronics

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2002/0010611 A1(YAMAJI et al.) 24 January 2002 (24.01.2002), entire document especially Figs 1-2; paras [0009]-[0010], [0105], [0109], [0110], [0150]	14-16, 22-23, 46-48, 55-56 ----- 1-13, 17-21, 24-45, 49-54, 57-64
Y	US 6,832,092 B1 (SUAREZ et al.) 14 December 2004 (14.12.2004), entire document especially col 5, ln 55-col 6, lns 3	1-13, 32-45
Y	US 2006/0178933 A1 (FITZGERALD et al.) 10 August 2006 (10.08.2006), entire document especially paras [0050]-[0051]	6-10, 17-21, 24-31, 37-42, 49-54, 57-64
A	US 2012/0029985 A1 (WILSON et al.) 02 February 2012 (02.02.2012), entire document	1-64
A	US 2009/0321511 A1 (BROWNE) 31 December 2009 (31.12.2009), entire document	1-64

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

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

15 Decemebr 2012 (15.12.2012)

Date of mailing of the international search report

10 JAN 2013

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