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(54) Title: DYNAMIC PREDEFINED PRODUCT REVIEWS

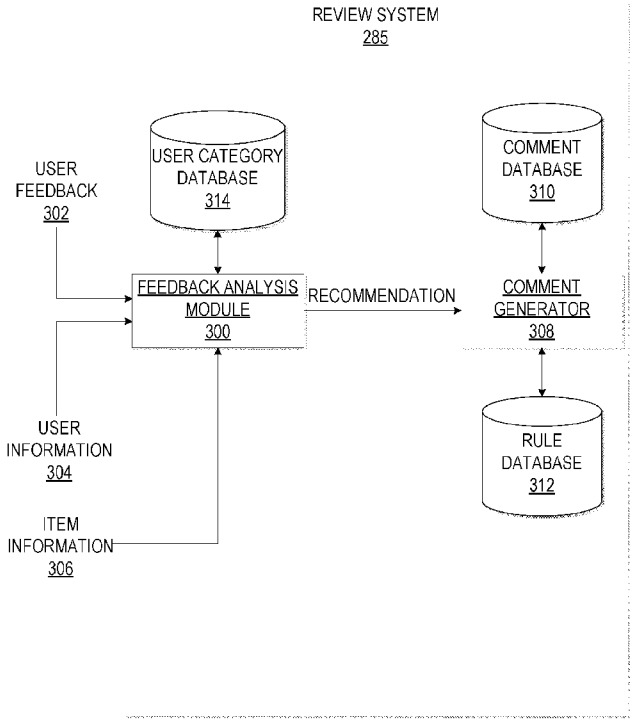


FIG. 3

(57) Abstract: In an example embodiment, user feedback on a purchased item is received from a user. Attributes of the purchased item are identified. Then relevant attributes are determined from the attributes, the determination of relevant attributes being based on user information regarding the user. Comments for the relevant attributes are generated based on the user feedback. The comments are then displayed to the user for selection and posting.

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DYNAMIC PREDEFINED PRODUCT REVIEWS

CLAIM OF PRIORITY

[0001] This International application claims the priority benefit of U.S. Patent Application Serial No. 14/633,938 filed on February 27, 2015, and entitled "SYSTEM DYNAMIC PREDEFINED PRODUCT REVIEWS," which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] This application relates generally to the dynamic generation of information by a computer system. More specifically, this application relates to dynamic generation or selection of predefined product reviews.

BACKGROUND

[0003] Consumers are shopping online for a growing variety of products and services and may conduct searches to locate items that are available for purchase or to access information regarding the items. Many consumers trust reviews from other consumers more than any other type of review, but it can be difficult to motivate consumers to review items they have purchased due to the effort involved in creating and posting the review. This problem is exacerbated by the rise of mobile devices, which often have small screens and/or keyboards (usually built into the screens) and thus are more difficult to type on. As a result, reviews can be skewed towards the extremes. Generally, consumers who either really love a product or really hate a product are the most likely to post reviews and, as such, reviews can be dominated by 5-star and 1-star reviews (on a scale of 1 to 5 stars). Making the review process less time and thought intensive for consumers will increase the number of reviews and ultimately aid in providing a more representative sample of consumer opinion.

BRIEF DESCRIPTION OF DRAWINGS

[0004] FIG. 1 is a block diagram illustrating a networked system, according to some example embodiments.

[0005] FIG. 2 is a block diagram illustrating various applications that, in one example embodiment, are provided as part of application server(s) in FIG. 1.

[0006] FIG. 3 is a block diagram illustrating the review system in more detail, in accordance with an example embodiment.

[0007] FIG. 4 is a diagram illustrating a data structure for a user category in accordance with an example embodiment.

[0008] FIG. 5 is a flow diagram illustrating a method of dynamically generating comments for a review of an item in accordance with an example embodiment.

[0009] FIG. 6 is a flow diagram illustrating determining relevant attributes of an item in more detail, in accordance with an example embodiment.

[0010] FIG. 7 is a screen capture depicting an example user interface using an email client in accordance with an example embodiment.

[0011] FIG. 8 is a screen capture depicting an alternative user interface for the invitation to submit a review via a prepopulated review process.

[0012] FIG. 9 is a screen capture depicting an example user interface for beginning the prepopulated review process.

[0013] FIG. 10 is a screen capture depicting a user interface 1presenting prepopulated comments in accordance with an example embodiment.

[0014] FIG. 11 is a screen capture depicting another user interface presenting prepopulated comments in accordance with an example embodiment.

[0015] FIG. 12 is a screen capture depicting a user interface presenting prepopulated comments in accordance with an example embodiment.

[0016] FIG. 13 is a screen capture depicting another user interface presenting prepopulated comments in accordance with an example embodiment.

[0017] FIG. 14 is a screen capture depicting another user interface presenting prepopulated comments in accordance with an example embodiment.

[0018] FIG. 15 is a block diagram illustrating an example of a software architecture that may be installed on a machine, according to some example embodiments.

[0019] FIG. 16 illustrates a diagrammatic representation of a machine in the

form of a computer system within which a set of instructions may be executed for causing the machine to perform any one or more of the methodologies discussed herein, according to an example embodiment.

DETAILED DESCRIPTION

[0020] The description that follows includes systems, methods, techniques, instruction sequences, and computing machine program products that embody illustrative embodiments of the disclosure. In the following description, for the purposes of explanation, numerous specific details are set forth in order to provide an understanding of various embodiments of the inventive subject matter. It will be evident, however, to those skilled in the art, that embodiments of the inventive subject matter may be practiced without these specific details. In general, well-known instruction instances, protocols, structures, and techniques are not necessarily shown in detail.

[0021] In an example embodiment, predefined product reviews can be dynamically generated and provided to consumers. The consumers can then accept or modify the predefined product reviews, making the review process much less time consuming for users. As will be described in detail below, the product reviews can be generated on-the-fly using a number of different factors.

[0022] With reference to **FIG. 1**, an example embodiment of a high-level client-server-based network architecture **100** is shown. A networked system **102**, in the example forms of a network-based marketplace or payment system, provides server-side functionality via a network **104** (e.g., the Internet or wide area network (WAN)) to one or more client devices **110**. **FIG. 1** illustrates, for example, a web client **112** (e.g., a browser, such as the Internet Explorer® browser developed by Microsoft® Corporation of Redmond, Washington State), an application **114**, and a programmatic client **116** executing on client device **110**.

[0023] The client device **110** may comprise, but is not limited to, a mobile phone, desktop computer, laptop, portable digital assistant (PDA), smart phone, tablet, ultra book, netbook, laptop, multi-processor system, microprocessor-

based or programmable consumer electronics, game console, set-top box, or any other communication device that a user may utilize to access the networked system **102**. In some embodiments, the client device **110** may comprise a display module (not shown) to display information (e.g., in the form of user interfaces). In further embodiments, the client device **110** may comprise one or more of touch screens, accelerometers, gyroscopes, cameras, microphones, global positioning system (GPS) devices, and so forth. The client device **110** may be a device of a user that is used to perform a transaction involving digital items within the networked system **102**. In one embodiment, the networked system **102** is a network-based marketplace that responds to requests for product listings, publishes publications comprising item listings of products available on the network-based marketplace, and manages payments for these marketplace transactions. One or more users **106** may be a person, a machine, or other means of interacting with client device **110**. In embodiments, the user **106** is not part of the network architecture **100**, but may interact with the network architecture **100** via client device **110** or another means. For example, one or more portions of network **104** may be an ad hoc network, an intranet, an extranet, a virtual private network (VPN), a local area network (LAN), a wireless LAN (WLAN), a wide area network (WAN), a wireless WAN (WWAN), a metropolitan area network (MAN), a portion of the Internet, a portion of the public switched telephone network (PSTN), a cellular telephone network, a wireless network, a WiFi network, a WiMax network, another type of network, or a combination of two or more such networks.

[0024] Each of the client device **110** may include one or more applications **114** (also referred to as "apps") such as, but not limited to, a web browser, messaging application, electronic mail (email) application, an e-commerce site application (also referred to as a marketplace application), and the like. In some embodiments, if the e-commerce site application is included in a given one of the client device **110**, then this application is configured to locally provide the user interface and at least some of the functionalities with the application configured to communicate with the networked system **102**, on an as needed basis, for data and/or processing capabilities not locally available (e.g., access to a database of items available for sale, to authenticate a user **106**, to verify a

method of payment, etc.). Conversely, if the e-commerce site application is not included in the client device **110**, the client device **110** may use its web browser to access the e-commerce site (or a variant thereof) hosted on the networked system **102**.

[0025] In example embodiments, the user **106** is not part of the network architecture **100**, but may interact with the network architecture **100** via the client device **110** or other means. For instance, the user **106** provides input (e.g., touch screen input or alphanumeric input) to the client device **110** and the input is communicated to the networked system **102** via the network **104**. In this instance, the networked system **102**, in response to receiving the input from the user **106**, communicates information to the client device **110** via the network **104** to be presented to the user **106**. In this way, the user **106** can interact with the networked system **102** using the client device **110**.

[0026] An application program interface (API) server **120** and a web server **122** are coupled to, and provide programmatic and web interfaces respectively to, one or more application servers **140**. The application servers **140** may host one or more publication systems **142** and payment systems **144**, each of which may comprise one or more modules or applications and each of which may be embodied as hardware, software, firmware, or any combination thereof. The application servers **140** are, in turn, shown to be coupled to one or more database servers **124** that facilitate access to one or more information storage repositories or database(s) **126**. In an example embodiment, the databases **126** are storage devices that store information to be posted (e.g., publications or listings) to the publication system **142**. The databases **126** may also store digital item information in accordance with example embodiments.

[0027] Additionally, a third party application **132**, executing on third party server(s) **130**, is shown as having programmatic access to the networked system **102** via the programmatic interface provided by the API server **120**. For example, the third party application **132**, utilizing information retrieved from the networked system **102**, supports one or more features or functions on a website hosted by the third party. The third party website, for example, provides one or more promotional, marketplace, or payment functions that are supported by the relevant applications of the networked system **102**.

[0028] The publication systems **142** may provide a number of publication functions and services to users **106** that access the networked system **102**. The payment systems **144** may likewise provide a number of functions to perform or facilitate payments and transactions. While the publication system **142** and payment system **144** are shown in **FIG. 1** to both form part of the networked system **102**, it will be appreciated that, in alternative embodiments, each system **142** and **144** may form part of a payment service that is separate and distinct from the networked system **102**. In some embodiments, the payment systems **144** may form part of the publication system **142**.

[0029] The review system **150** may provide functionality operable to perform various review functions using the user selected data. For example, the review system **150** may access the user selected data from the databases **126**, the third party servers **130**, the publication system **142**, and other sources. In some example embodiments, the review system **150** may analyze the user data to generate preprogrammed comments for reviews of items for sale in listings in the publication system **142**. As more content is added to a category by the user **106**, the review system **150** can further refine the reviews. In some example embodiments, the review system **150** may communicate with the publication systems **142** (e.g., accessing item listings) and payment system **144**. In an alternative embodiment, the review system **150** may be a part of the publication system **142**.

[0030] Further, while the client-server-based network architecture **100** shown in **FIG. 1** employs a client-server architecture, the present inventive subject matter is, of course, not limited to such an architecture, and could equally well find application in a distributed, or peer-to-peer, architecture system, for example. The various publication system **142**, payment system **144**, and review system **150** could also be implemented as standalone software programs, which do not necessarily have networking capabilities.

[0031] The web client **112** may access the various publication and payment systems **142** and **144** via the web interface supported by the web server **122**. Similarly, the programmatic client **116** accesses the various services and functions provided by the publication and payment systems **142** and **144** via the programmatic interface provided by the API server **120**. The programmatic

client **116** may, for example, be a seller application (e.g., the Turbo Lister application developed by eBay® Inc., of San Jose, California) to enable sellers to author and manage listings on the networked system **102** in an off-line manner, and to perform batch-mode communications between the programmatic client **116** and the networked system **102**.

[0032] **FIG. 2** is a block diagram illustrating various applications that, in one example embodiment, are provided as part of application server(s) **140** in **FIG. 1**. The applications may be hosted on dedicated or shared server machines (not shown) that are communicatively coupled to enable communications between server machines. The applications themselves are communicatively coupled (e.g., via appropriate interfaces) to each other and to various data sources, so as to allow information to be passed between the applications or so as to allow the applications to share and access common data. The applications may furthermore access one or more databases **126** via the database servers **124**.

[0033] The application server(s) **140** may provide a number of publishing, listing, and price-setting mechanisms whereby a seller may list (or publish information concerning) goods or services for sale, a buyer can express interest in or indicate a desire to purchase such goods or services, and a price can be set for a transaction pertaining to the goods or services. To this end, the applications are shown to include at least one publication application **200** and one or more auction applications **205**, which support auction-format listing and price setting mechanisms (e.g., English, Dutch, Vickrey, Chinese, Double, Reverse auctions, etc.). The various auction applications **205** may also provide a number of features in support of such auction-format listings, such as a reserve price feature whereby a seller may specify a reserve price in connection with a listing, and a proxy-bidding feature whereby a bidder may invoke automated proxy bidding.

[0034] A number of fixed-price application(s) **210** support fixed-price listing formats (e.g., the traditional classified advertisement–type listing or a catalogue listing) and buyout-type listings. Specifically, buyout-type listings (e.g., including the Buy-It-Now (BIN) technology developed by eBay Inc., of San

Jose, California) may be offered in conjunction with auction-format listings, and allow a buyer to purchase goods or services, which are also being offered for sale via an auction, for a fixed-price that is typically higher than the starting price of the auction.

[0035] Store application(s) **215** allow a seller to group listings within a "virtual" store, which may be branded and otherwise personalized by and for the seller. Such a virtual store may also offer promotions, incentives, and features that are specific and personalized to a relevant seller.

[0036] Reputation application(s) **220** allow users **106** who transact to establish, build, and maintain reputations, which may be made available and published to potential trading partners. Consider that where, for example, the application server(s) **140** supports person-to-person trading, users **106** may otherwise have no history or other reference information whereby the trustworthiness and credibility of potential trading partners may be assessed. The reputation application(s) **220** allow a user **106** (for example, through feedback provided by other transaction partners) to establish a reputation over time. Other potential trading partners may then reference such a reputation for the purposes of assessing credibility and trustworthiness.

[0037] Personalization application(s) **225** allow users **106** to personalize various aspects of their interactions. For example, a user **106** may, utilizing an appropriate personalization application **225**, create a personalized reference page at which information regarding transactions to which the user **106** is (or has been) a party may be viewed. Further, a personalization application **225** may enable a user **106** to personalize listings and other aspects of their interactions with the application server(s) **140** and other parties.

[0038] The application server(s) **140** may support a number of marketplaces that are customized, for example, for specific geographic regions. A version may be customized for the United Kingdom, whereas another version may be customized for the United States. Each of these versions may operate as an independent marketplace or may be customized (or internationalized)

presentations of a common underlying marketplace. The application server(s) **140** may accordingly include a number of internationalization application(s) **230** that customize information (and/or the presentation of information) according to predetermined criteria (e.g., geographic, demographic or marketplace criteria). For example, the internationalization application(s) **230** may be used to support the customization of information for a number of regional websites that are accessible via respective web servers **122**.

[0039] Navigation may be facilitated by one or more navigation application(s) **235**. For example, a search application (as an example of a navigation application **235**) may enable key word searches of listings published. A browse application may allow users **106** to browse various category, catalogue, or inventory data structures according to which listings may be classified. Various other navigation applications **235** may be provided to supplement the search and browse applications.

[0040] In order to make available listings as visually informing and attractive as possible, the applications may include one or more imaging application(s) **240**, which users **106** may utilize to upload images for inclusion within listings. An imaging application **240** also operates to incorporate images within viewed listings. The imaging application(s) **240** may also support one or more promotional features, such as image galleries that are presented to potential buyers. For example, sellers may pay an additional fee to have an image included within a gallery of images for promoted items.

[0041] Listing creation application(s) **245** allow sellers to conveniently author listings pertaining to goods or services that they wish to transact, and listing management application(s) **250** allow sellers to manage such listings. Specifically, where a particular seller has authored and/or published a large number of listings, the management of such listings may present a challenge. The listing management applications **250** provide a number of features (e.g., auto-relisting, inventory level monitors, etc.) to assist the seller in managing such listings. One or more post-listing management applications **255** also assist sellers with a number of activities that typically occur post-listing. For example,

upon completion of an auction facilitated by one or more auction applications **205**, a seller may wish to leave feedback regarding a particular buyer. To this end, a post-listing management application **255** may provide an interface to one or more reputation applications **220**, so as to allow the seller to conveniently provide feedback regarding multiple buyers to the reputation applications **220**.

[0042] Dispute resolution applications **260** provide mechanisms whereby disputes arising between transacting parties may be resolved. For example, the dispute resolution applications **260** may provide guided procedures whereby the parties are guided through a number of steps in an attempt to settle a dispute. In the event that the dispute cannot be settled via the guided procedures, the dispute may be escalated to a third-party mediator or arbitrator.

[0043] A number of fraud prevention application(s) **265** implement fraud detection and prevention mechanisms to reduce the occurrence of fraud.

[0044] Messaging application(s) **270** are responsible for the generation and delivery of messages to users **106** (such as, for example, messages advising users **106** regarding the status of listings (e.g., providing "outbid" notices to bidders during an auction process, providing promotional and merchandising information to users **106**, or, as will be described later, requesting that a buyer review an item)). Respective messaging application(s) **270** may utilize any one of a number of message delivery networks and platforms to deliver messages to users **106**. For example, messaging applications **270** may deliver electronic mail (e-mail), instant message (IM), Short Message Service (SMS), text, facsimile, or voice (e.g., Voice over IP (VoIP)) messages via the wired (e.g., the Internet), plain old telephone service (POTS), or wireless (e.g., mobile, cellular, WiFi, WiMAX) networks.

[0045] Merchandising application(s) **275** support various merchandising functions that are made available to sellers to enable sellers to increase sales. The merchandising application(s) **275** also operate the various merchandising features that may be invoked by sellers, and may monitor and track the success of merchandising strategies employed by sellers.

[0046] The application server(s) **140** itself, or one or more parties that transact with the application server(s) **140**, may operate loyalty programs that are supported by one or more loyalty/promotion applications **280**. For example, a buyer may earn loyalty or promotion points for each transaction established and/or concluded with a particular seller, and be offered a reward for which accumulated loyalty points can be redeemed.

[0047] A review system **285** may provide a mechanism for buyers to provide reviews of items sold or for sale in the various listings. As will be described in more detail below, this may include a mechanism to generate or retrieve predefined comments so as to ease the burden on the buyer to create comments for the review.

[0048] **FIG. 3** is a block diagram illustrating the review system **285** in more detail, in accordance with an example embodiment. The review system **285** includes a feedback analysis module **300**. In an example embodiment, the feedback analysis module **300** acts to analyze user feedback **302** from a buyer as well as additional information such as user information **304** and item information **306** and provide a recommendation to a comment generator **308**. The feedback **302**, for example, may include some indication of the user **106**'s happiness or unhappiness with the item, such as a general star rating (e.g., 4 stars) from the user **106**. The comment generator **308** then dynamically creates comments for a review based on the recommendation from the feedback analysis module **300**. The comment generator **308** may perform this by accessing a number of predefined comments from a comment database **310** and selecting certain predefined comments based on the recommendation from the feedback analysis module **300**. Alternatively, or in conjunction with selecting from among predefined comments in the comment database **310**, the comment generator **308** also may generate comments from scratch based on one or more rules stored in a rule database **312**. Thus, for example, based on the fact that the user **106** indicates a 4-star rating for the item, the comment generator **308** could select or generate appropriate comments consistent with the provided rating (e.g., "This camera is awesome," "This camera is awful," etc.).

[0049] As stated above, the feedback analysis module **300** may also consider user information **304** in making its recommendation. This may include information gleaned from a user profile or similar data structure, such as gender, age, location, interests, education, profession, etc. This may also include information gleaned from usage history, such as previous transactions and previous reviews/comments. The comment generator **308** then bases the generation or retrieval of the comments on the recommendation which was based on this user information **304**. Thus, the comment generator **308** may generate or retrieve different comments for the same feedback **302** based on differences between users **106**. For example, it may be assumed that a male may wish to provide different types of comments about a woman's blouse than a female would. Likewise, factors such as age, location, interests, education, and profession may all indicate that different types of comments should be generated or retrieved for a particular user **106**. As an example, a 20 year old male college student majoring in electrical engineering may desire to make comments on a digital camera that are more geared towards the technological aspects of the digital camera (e.g., availability of advanced features, megapixels captured, data storage, etc.) than a 70 year old female retired schoolteacher (e.g., ease of use, attractiveness of the camera itself). By utilizing user information **304** in its analysis, the feedback analysis module **300** is able to recommend that the comment generator **308** generate or retrieve comments that are more likely to be appropriate for the individual buyer, and thus are less likely to be overruled or altered by the buyer before posting.

[0050] Usage history may also be relevant to a determination about the "type" of buyer the user **106** is, and thus aid in providing an accurate recommendation for comments in the review. A user **106** who, for example, has a history of purchasing electronic devices may be more likely to focus on technical features in any comments in a review, whereas a user **106** who has never purchased an electronic device may be more focused on ease of use or desirability as a gift.

[0051] As stated above, the feedback analysis module **300** may also consider item information **306** in making its recommendation. Item information **306** may include item attributes, such as product specifications (dimensions, features,

color, etc.). Item information **306** could also include item category (e.g., electronics, clothing, etc.). Item information **306** could also include less fixed attributes such as item popularity (e.g., number of page views, number of bidders in the case of an auction, etc.).

[0052] In an example embodiment, item attributes may be automatically generated by parsing textual description(s) of the item. For example, a seller may write a paragraph describing the item and a natural language parser may parse the paragraph and extract text describing item attributes using one or more natural language processing rules. In another example embodiment, the item attributes may be specified explicitly in an item listing, such as in a structured text portion of an item listing (where a seller was prompted for individual attributes when listing the item). In another example embodiment, an external database could be queried using an item identification (e.g., barcode identification, model number, etc.) to obtain item attributes.

[0053] Regardless of how the item attributes are obtained, in an example embodiment the feedback analysis module **300** may undertake an analysis of the item attributes and make a determination of the attribute or attributes that are most important to this particular buyer. This may be in lieu of or in addition to the analysis of the feedback **302** and/or user information **304** as described earlier. Thus, it may be determined, for example, that a user **106** who has given a rating to a digital camera and who also has user information **304** that indicates that the user **106** is a technophile may be most interested in some of the technical features of the item, and thus the feedback analysis module **300** can locate the item attributes that are "most technical" and recommend that the comments be generated around that feature or features. Thus, for example, if the item is a digital camera, the feedback analysis module **300** may recommend that comments be generated around the megapixel count. In some example embodiments, the feedback analysis module **300** may take this a step further and identify "key" attributes of an item. In one example, a "key" attribute is a feature that has been identified by the manufacturer or seller as being an attribute that differentiates the item from competition. In some examples this may be a new or improved feature of the item. It may therefore be assumed that a user

106 may be more likely to want to comment on that key attribute when submitting a review.

[0054] As part of this process, the feedback analysis module **300** may classify the user **106** into one of various user categories that might help in determining which comments to generate or retrieve. The various user categories may be defined in a user category database **314**. In an example embodiment, the user category database **314** may store a data structure for each user category. **FIG. 4** is a diagram illustrating a data structure **400** for a user category in accordance with an example embodiment. The data structure **400** may include a user category identification **402**. The user category identification **402** may be either textual (e.g, "technophile") or numeric (e.g., "12432) or any combination of the two. The data structure **400** may also include a set of profiling criteria **404**. The profiling criteria **404** may indicate ways in which the feedback analysis module **300** can use to determine whether a buyer fits into the corresponding user category. The profiling criteria **404** may include, for example, a set of pieces of user information **304** and values or ranges for each those pieces of user information **304**. For example, a profiling criteria **404** for a technophile may specify that if a user **106** has an explicit interest in technology listed in a user profile or has 5 or more electronics purchases in the last year or has a certain combination of demographic information (e.g. sex, age, location) or has a particular educational background then the user **106** should be classified as a technophile. The data structure **400** may also include an actions field **406**. The actions field **406** may indicate which action(s), if any, the feedback analysis module **300** should perform when a buyer is classified in the corresponding user category. The actions may include, for example, an identification of key item attributes that the user **106** would likely focus on in a review, or an identification of particular vernacular, slang or regional language variations the user **106** might use in a review (e.g., "this camera is wicked awesome").

[0055] **FIG. 5** is a flow diagram illustrating a method **500** of dynamically generating comments for a review of an item in accordance with an example embodiment. At operation **510**, user feedback **302** may be received. As described earlier, this user feedback **302** may be limited in order to reduce the

burden on the user **106** in creating a review. In an example embodiment, the user feedback **302** may be a single rating, such as a star rating, indicating the overall satisfaction with the item. In another example embodiment, the user feedback **302** may be a series of ratings indicating satisfaction in several specific categories (e.g, ease of use, functionality, aesthetics, etc.).

[0056] At operation **520**, attributes of the item may be analyzed. As described earlier, this may be performed in a number of different ways. In one example embodiment, an item listing may explicitly provide details about attributes (in addition to the details of the item pertaining to those attributes) in the form of metadata. For example, an item listing may have a specific field called "megapixel count" and the metadata accompanying the item listing may indicate that this field pertains to megapixel count of a digital camera and also indicate that this represents a technical attribute of the item. Alternatively, the item listing may have a specific field called "color" and the metadata accompanying the item listing may indicate that this field pertains to the color of the item and also indicate that this represents an aesthetic attribute of the item. If such attribute information is explicitly provided, operation **520** may involve utilizing such attribute information. If such attribute information is not explicitly provided, however, operation **520** may involve deducing such attribute information through various means, such as by parsing text of an item listing and accessing item categorization information to identify common attributes of items in particular categories. For example, even if the item listing itself does not contain a specific listing for megapixel count, operation **520** may identify that the item is a digital camera and then retrieve a list of common attributes of digital cameras, which may include megapixel count. It may then parse the item listing looking for information that may pertain to megapixel count. The output of operation **520** may be a list of attributes of the item (and possibly also an indication of the type of each attribute, e.g., technical versus aesthetic).

[0057] At operation **530,** relevant attributes of the item may be determined. This operation will be described in more detail below with respect to **FIG. 6**. Operation **530** may act to select a certain set of the attributes output by operation **520** and label them as key and/or relevant attributes for a particular userAt

operation **540**, comments may be dynamically generated for the relevant attributes based on the user feedback **302**. As described earlier, the user feedback **302** may indicate the overall impression the user **106** had with regard to the relevant attributes. As such, for example, a five-star rating may cause operation **540** to dynamically generate significantly positive comments for the relevant attributes. Likewise, a one-star rating may cause operation **540** to dynamically generate significantly negative comments for the relevant attributes.

[0058] At operation **550**, the comments are displayed to the user **106** for selection and posting.

[0059] **FIG. 6** is a flow diagram illustrating determining relevant attributes of an item (operation **530)** in more detail, in accordance with an example embodiment. At operation **600**, user information **304** may be obtained. As described earlier the user information **304** may include, for example, user profile information and usage information. At operation **610**, a user category may be determined based on this user information **304**. As described earlier, this may involve accessing a user category database **314** and attempting to match up the user **106** with a user category based on the user information **304**. At operation **620**, item attributes may be weighted based on the user category. Thus, for example, for certain user categories, certain item attributes (or types of item attributes) can be assigned a higher weight. In an example embodiment, the weighting may also depend on whether or not a particular attribute is a key attribute of the item. A key attribute is an attribute reflecting an important feature of the product. Typically such key attributes will be the few attributes that the majority of buyers would focus on when deciding to purchase the item. For example, in the case of televisions, the fact that the television has 4K resolution would be a key feature, as would the size of the display (e.g., 60-inch). A determination of which attributes are key attributes may be made by deduction from the item listing (e.g., look for the features most talked about in the description) or from third party sources (e.g., look at reviews of the item and see which features are most talked about in reviews). Alternatively, a database may be maintained of the key features of various types of items, and such a database could be queried once the type of the item is known to extract key features. That is, in some embodiments, the key

attributes may be the most relevant to one user, but there may also be instances where identified "key" attributes of an item are not the most relevant to another user (e.g., non-technical user may not be interested in exact zoom range or megapixel count).

[0060] Then, at operation **630** the *n* top attributes (according to weight) may be selected as relevant attributes. For example, there may be ten item attributes. These ten item attributes may then be weighted based on the user category. So, for example, if the user category is "technophile" then certain item attributes may be assigned a higher weight. Then, for example, the top two item attributes based on weight can be selected as the relevant attributes, thus producing a set of relevant attributes that varies based on the user category. It should be noted that while operation **620** is depicted as weighting item attributes based on user category, other factors, such as item information **306** (for example item category) may be used in this weighting as well. For example, if the item is determined to be in the digital camera category, certain attributes may be deemed to have higher or lower weight than if the item is in the clothing category. It should also be noted that while the examples herein depict only two prepopulated comments for each user/item combination, one of ordinary skill in the art will recognize that any number of prepopulated comments can be generated or retrieved and displayed to the user for selection.

[0061] **FIGs. 7-14** are screen captures depicting an example user interface visible to a user **106** while a system is generating comments on his or her behalf. **FIGs. 7-14** depict a user interface on a mobile device, but one of ordinary skill in the art will recognize that implementations are possible on different devices, such as laptop or desktop computers through a web browser with altered user interfaces.

[0062] **FIG. 7** is a screen capture depicting an example user interface **700** using an email client **702** in accordance with an example embodiment. Here, the user interface **700** includes an email client **702** that depicts an email **704**. The email **704** indicates that the system recognizes that the user **106** has made a recent purchase and invites the user **106** to submit a review for the purchased item via a

prepopulated review process. If the user **106** selects on the link **706** by, for example, tapping the link **706** with his or her finger, the prepopulated review process can begin.

[0063] **FIG. 8** is a screen capture depicting an alternative user interface **800** for the invitation to submit a review via a prepopulated review process. This user interface **800** may be utilized, for example, when the entity running the item listing and/or purchase system has distributed an application **114**, which the user **106** has installed on his or her mobile device. In such a case, rather than invite the user **106** to submit the review via email **704**, the installed application **114** can launch a notification window **802** containing the invitation. Additionally, rather than using a link to select to begin the prepopulated review process, the user **106** may select a "yes" button **804.**

[0064] Regardless of the mechanism (e.g., either **FIG. 7** or **FIG. 8**) used to invite the user **106** to begin the prepopulated review process, **FIG. 9** is a screen capture depicting an example user interface **900** for beginning the prepopulated review process. Here, the user interface **900** asks the user **106** to provide an overall rating of the item by selecting one of five possible ratings **902** (one to five stars). The user **106** may select on one of these five possible ratings **902** to provide user feedback **302** as to the overall satisfaction with the item.

[0065] In response to this, and in accordance with, for example, **FIGs. 5 and 6**, the user **106** may be presented with one or more prepopulated comments from which to select. These comments may be based, for example, on the user feedback **302** provided in the user interface **900** in **FIG. 9** as well as user information **304** and item information **306**. Thus, the comments presented may vary greatly depending on the user feedback **302**, user information **304**, and item information **306**. **FIG. 10** is a screen capture depicting a user interface **1000** presenting prepopulated comments **1002A-1002B** in accordance with an example embodiment. Here, the user **106** has selected a five-star rating for the item, as depicted at **1004**. Based on the type of user **106** and the type of the item (digital camera), the system has presented two possible prepopulated comments **1002A-1002B** from which the user **106** can select. The user **106** can also enter

his or her own comment **1002C** should none of the prepopulated comments **1002A-1002B** reflect the user **106**'s position on the item. Notably, the prepopulated comments **1002A-1002B** are positive for the attributes involved. These attributes may be the relevant attributes as determined based on the user category and item information **306**.

[0066] FIG. 11 is a screen capture depicting another user interface **1100** presenting prepopulated comments **1102A-1102B** in accordance with an example embodiment. Here, the user **106** has selected a one-star rating for the item, as depicted at **1104**. Based on the type of user **106** and the type of the item (digital camera), the system has presented two possible prepopulated comments **1102A-1102B** from which the user **106** can select. The user **106** can also enter his or her own comment **1102C** should none of the prepopulated comments **1102A-1102B** reflect the user **106**'s position on the item. Notably, the prepopulated comments **1102A-1102B** are negative for the attributes involved. These attributes may be the relevant attributes as determined based on the user category and item information **306**.

[0067] It should be noted that the prepopulated comments **1002A-1002B**, **1102A-1102B** in **FIGs. 10** and **11** are all geared towards technical features. This may be based in part, for example, on the fact that the user category for this user **106** indicates a leaning towards technical features (e.g., "technophile"). **FIGs. 12-14**, on the other hand, may be geared towards a user **106** having a user category that leans away from technical features (e.g., "luddite").

[0068] FIG. 12 is a screen capture depicting a user interface **1200** presenting prepopulated comments **1202A-1002B** in accordance with an example embodiment. Here, the user **106** has selected a five-star rating for the item, as depicted at **1204**. Based on the type of user **106** and the type of the item (digital camera), the system has presented two possible prepopulated comments **1202A-1202B** from which the user **106** can select. The user **106** can also enter his or her own comment **1202C** should none of the prepopulated comments **1202A-1202B** reflect the user **106**'s position on the item. Notably, the prepopulated comments **1202A-1202B** are positive for the attributes involved. These

attributes may be the relevant attributes as determined based on the user category and item information **306**. Notably, the attributes involved are less technical than those suggested in **FIG. 10**, even though both users **106** selected the same five-star rating for the same item.

[0069] FIG. 13 is a screen capture depicting another user interface **1300** presenting prepopulated comments **1304A-1304B** in accordance with an example embodiment. Here, the user **106** has selected a one-star rating for the item, as depicted at **1304**. Based on the type of user **106** and the type of the item (digital camera), the system has presented two possible prepopulated comments **1304A-1304B** from which the user **106** can select. The user **106** can also enter his or her own comment **1304C** should none of the prepopulated comments **1302A-1302B** reflect the user **106**'s position on the item. Notably, the prepopulated comments **1304A-1304B** are negative for the attributes involved. These attributes may be the relevant attributes as determined based on the user category and item information **306**. Notably, the attributes involved are less technical than those suggested in **FIG. 11**, even though both users **106** selected the same five-star rating for the same item.

[0070] FIG. 14 is a screen capture depicting another user interface **1400** presenting prepopulated comments **1402A-1404B** in accordance with an example embodiment. Here, the user **106** has selected a three-star rating for the item, as depicted at **1404**. Based on the type of user **106** and the type of the item (digital camera), the system has presented two possible prepopulated comments **1402A-1404B** from which the user **106** can select. The user **106** can also enter his or her own comment **1404C** should none of the prepopulated comments **1402A-1402B** reflect the user **106**'s position on the item. Notably, the prepopulated comments **1402A-1402B** are neutral for the attributes involved.

[0071] In another example embodiment, the prepopulated comment(s) is/are generated or retrieved without the initial feedback from the user. In such an example embodiment, the system may identify a certain number of relevant attributes and then list a certain number of different potential comments (based on various degrees of satisfaction with the item) for the relevant attributes. For

example, if image resolution is determined to be a highly relevant or key attribute, the prepopulated comments generated and presented to the user might include "amazing image resolution, couldn't imagine any sharper image for human eyes," "okay image resolution, better than I expected," and "poor image quality for a camera at this price point."

MODULES, COMPONENTS, AND LOGIC

[0072] Certain embodiments are described herein as including logic or a number of components, modules, or mechanisms. Modules may constitute either software modules (e.g., code embodied on a machine-readable medium) or hardware modules. A "hardware module" is a tangible unit capable of performing certain operations and may be configured or arranged in a certain physical manner. In various example embodiments, one or more computer systems (e.g., a standalone computer system, a client computer system, or a server computer system) or one or more hardware modules of a computer system (e.g., a processor or a group of processors) may be configured by software (e.g., an application or application portion) as a hardware module that operates to perform certain operations as described herein.

[0073] In some embodiments, a hardware module may be implemented mechanically, electronically, or any suitable combination thereof. For example, a hardware module may include dedicated circuitry or logic that is permanently configured to perform certain operations. For example, a hardware module may be a special-purpose processor, such as a field-programmable gate array (FPGA) or an application specific integrated circuit (ASIC). A hardware module may also include programmable logic or circuitry that is temporarily configured by software to perform certain operations. For example, a hardware module may include software executed by a general-purpose processor or other programmable processor. Once configured by such software, hardware modules become specific machines (or specific components of a machine) uniquely tailored to perform the configured functions and are no longer general-purpose processors. It will be appreciated that the decision to implement a hardware module mechanically, in dedicated and permanently configured circuitry, or in

temporarily configured circuitry (e.g., configured by software) may be driven by cost and time considerations.

[0074] Accordingly, the phrase "hardware module" should be understood to encompass a tangible entity, be that an entity that is physically constructed, permanently configured (e.g., hardwired), or temporarily configured (e.g., programmed) to operate in a certain manner or to perform certain operations described herein. As used herein, "hardware-implemented module" refers to a hardware module. Considering embodiments in which hardware modules are temporarily configured (e.g., programmed), each of the hardware modules need not be configured or instantiated at any one instance in time. For example, where a hardware module comprises a general-purpose processor configured by software to become a special-purpose processor, the general-purpose processor may be configured as respectively different special-purpose processors (e.g., comprising different hardware modules) at different times. Software accordingly configures a particular processor or processors, for example, to constitute a particular hardware module at one instance of time and to constitute a different hardware module at a different instance of time.

[0075] Hardware modules can provide information to, and receive information from, other hardware modules. Accordingly, the described hardware modules may be regarded as being communicatively coupled. Where multiple hardware modules exist contemporaneously, communications may be achieved through signal transmission (e.g., over appropriate circuits and buses) between or among two or more of the hardware modules. In embodiments in which multiple hardware modules are configured or instantiated at different times, communications between such hardware modules may be achieved, for example, through the storage and retrieval of information in memory structures to which the multiple hardware modules have access. For example, one hardware module may perform an operation and store the output of that operation in a memory device to which it is communicatively coupled. A further hardware module may then, at a later time, access the memory device to retrieve and process the stored output. Hardware modules may also initiate communications with input or output devices, and can operate on a resource (e.g., a collection of information).

[0076] The various operations of example methods described herein may be

performed, at least partially, by one or more processors that are temporarily configured (e.g., by software) or permanently configured to perform the relevant operations. Whether temporarily or permanently configured, such processors may constitute processor-implemented modules that operate to perform one or more operations or functions described herein. As used herein, "processor-implemented module" refers to a hardware module implemented using one or more processors.

[0077] Similarly, the methods described herein may be at least partially processor-implemented, with a particular processor or processors being an example of hardware. For example, at least some of the operations of a method may be performed by one or more processors or processor-implemented modules. Moreover, the one or more processors may also operate to support performance of the relevant operations in a "cloud computing" environment or as a "software as a service" (SaaS). For example, at least some of the operations may be performed by a group of computers (as examples of machines including processors), with these operations being accessible via a network **104** (e.g., the Internet) and via one or more appropriate interfaces (e.g., an application program interface (API)).

[0078] The performance of certain of the operations may be distributed among the processors, not only residing within a single machine, but deployed across a number of machines. In some example embodiments, the processors or processor-implemented modules may be located in a single geographic location (e.g., within a home environment, an office environment, or a server farm). In other example embodiments, the processors or processor-implemented modules may be distributed across a number of geographic locations.

MACHINE AND SOFTWARE ARCHITECTURE

[0079] The modules, methods, applications and so forth described in conjunction with **FIGs. 1-14** are implemented in some embodiments in the context of a machine and an associated software architecture. The sections below describe representative software architecture(s) and machine (e.g., hardware) architecture(s) that are suitable for use with the disclosed embodiments.

[0080] Software architectures are used in conjunction with hardware architectures to create devices and machines tailored to particular purposes. For example, a particular hardware architecture coupled with a particular software architecture will create a mobile device, such as a mobile phone, tablet device, or so forth. A slightly different hardware and software architecture may yield a smart device for use in the "internet of things." While yet another combination produces a server computer for use within a cloud computing architecture. Not all combinations of such software and hardware architectures are presented here as those of skill in the art can readily understand how to implement embodiments of the disclosure in different contexts from the disclosure contained herein.

SOFTWARE ARCHITECTURE

[0081] **FIG. 15** is a block diagram **1500** illustrating a representative software architecture **1502**, which may be used in conjunction with various hardware architectures herein described. **FIG. 15** is merely a non-limiting example of a software architecture and it will be appreciated that many other architectures may be implemented to facilitate the functionality described herein. The software architecture **1502** may be executing on hardware such as machine **1600** of **FIG. 16** that includes, among other things, processors **1610**, memory **1630**, and I/O components **1650**. A representative hardware layer **1504** is illustrated and can represent, for example, the machine **1600** of FIG. 16. The representative hardware layer **1504** comprises one or more processing units **1506** having associated executable instructions **1508**. Executable instructions **1508** represent the executable instructions of the software architecture **1502**, including implementation of the methods, modules and so forth of **FIGs. 1-14**. Hardware layer **1504** also includes memory and/or storage modules **1510**, which also have executable instructions **1508**. Hardware layer **1504** may also comprise other hardware as indicated by **1512** which represents any other hardware of the hardware layer **1504**, such as the other hardware illustrated as part of machine **1600**.

[0082] In the example architecture of **FIG. 15**, the software **1502** may be conceptualized as a stack of layers where each layer provides particular functionality. For example, the software **1502** may include layers such as an

operating system **1514**, libraries **1516**, frameworks/middleware **1518**, applications **1520** and presentation layer **1544**. Operationally, the applications **1520** and/or other components within the layers may invoke application programming interface (API) calls **1524** through the software stack and receive a response, returned values, and so forth illustrated as messages **1526** in response to the API calls **1524**. The layers illustrated are representative in nature and not all software architectures **1502** have all layers. For example, some mobile or special purpose operating systems **1514** may not provide a frameworks / middleware layer **1518**, while others may provide such a layer. Other software architectures **1502** may include additional or different layers.

[0083] The operating system **1514** may manage hardware resources and provide common services. The operating system **1514** may include, for example, a kernel **1528**, services **1530**, and drivers **1532**. The kernel **1528** may act as an abstraction layer between the hardware and the other software layers. For example, the kernel **1528** may be responsible for memory management, processor management (e.g., scheduling), component management, networking, security settings, and so on. The services **1530** may provide other common services for the other software layers. The drivers **1532** may be responsible for controlling or interfacing with the underlying hardware. For instance, the drivers **1532** may include display drivers, camera drivers, Bluetooth® drivers, flash memory drivers, serial communication drivers (e.g., Universal Serial Bus (USB) drivers), Wi-Fi® drivers, audio drivers, power management drivers, and so forth depending on the hardware configuration.

[0084] The libraries **1516** may provide a common infrastructure that may be utilized by the applications **1520** and/or other components and/or layers. The libraries **1516** typically provide functionality that allows other software modules to perform tasks in an easier fashion than to interface directly with the underlying operating system **1514** functionality (e.g., kernel **1528**, services **1530** and/or drivers **1532**). The libraries **1516** may include system **1534** libraries (e.g., C standard library) that may provide functions such as memory allocation functions, string manipulation functions, mathematic functions, and the like. In addition, the libraries **1516** may include API libraries **1536** such as media libraries (e.g., libraries to support presentation and manipulation of various

media format such as MPEG4, H.264, MP3, AAC, AMR, JPG, PNG), graphics libraries (e.g., an OpenGL framework that may be used to render 2D and 3D in a graphic content on a display), database libraries (e.g., SQLite that may provide various relational database functions), web libraries (e.g., WebKit that may provide web browsing functionality), and the like. The libraries **1516** may also include a wide variety of other libraries **1538** to provide many other APIs to the applications **1520** and other software components/modules.

[0085] The frameworks **1518** (also sometimes referred to as middleware) may provide a higher-level common infrastructure that may be utilized by the applications **1520** and/or other software components/modules. For example, the frameworks **1518** may provide various graphic user interface (GUI) functions, high-level resource management, high-level location services, and so forth. The frameworks **1518** may provide a broad spectrum of other APIs that may be utilized by the applications **1520** and/or other software components/modules, some of which may be specific to a particular operating system **1514** or platform.

[0086] The applications **1520** includes built-in applications **1540** and/or third party applications **1542**. Examples of representative built-in applications **1540** may include, but are not limited to, a contacts application, a browser application, a book reader application, a location application, a media application, a messaging application, and/or a game application. Third party applications **1542** may include any of the built in applications **1540** as well as a broad assortment of other applications. In a specific example, the third party application **1542** (e.g., an application developed using the Android™ or iOS™ software development kit (SDK) by an entity other than the vendor of the particular platform) may be mobile software running on a mobile operating system such as iOS™, Android™, Windows® Phone, or other mobile operating systems. In this example, the third party application **1542** may invoke the API calls **1524** provided by the mobile operating system such as operating system **1514** to facilitate functionality described herein.

[0087] The applications **1520** may utilize built in operating system functions (e.g., kernel **1528**, services **1530** and/or drivers **1532**), libraries **1516** (e.g., system **1534**, APIs **1536**, and other libraries **1538**), and frameworks /

middleware **1518** to create user interfaces to interact with users **106** of the system. Alternatively, or additionally, in some systems interactions with a user **106** may occur through a presentation layer, such as presentation layer **1544**. In these systems, the application/module "logic" can be separated from the aspects of the application/module that interact with a user **106**.

[0088] Some software architectures **1502** utilize virtual machines. In the example of FIG. **15**, this is illustrated by virtual machine **1548**. A virtual machine **1548** creates a software environment where applications/modules can execute as if they were executing on a hardware machine (such as the machine of FIG. **16**, for example). A virtual machine **1548** is hosted by a host operating system (operating system **1514** in FIG. **16**) and typically, although not always, has a virtual machine monitor **1546**, which manages the operation of the virtual machine **1548** as well as the interface with the host operating system (i.e., operating system **1514**). A software architecture **1502** executes within the virtual machine **1548** such as an operating system **1550**, libraries **1552**, frameworks / middleware **1518**, applications **1556** and/or presentation layer **1558**. These layers of software architecture **1502** executing within the virtual machine **1548** can be the same as corresponding layers previously described or may be different.

EXAMPLE MACHINE ARCHITECTURE AND MACHINE-READABLE MEDIUM

[0089] **FIG. 16** is a block diagram illustrating components of a machine **1600**, according to some example embodiments, able to read instructions from a machine-readable medium (e.g., a machine-readable storage medium) and perform any one or more of the methodologies discussed herein. Specifically, **FIG. 16** shows a diagrammatic representation of the machine **1600** in the example form of a computer system, within which instructions **1616** (e.g., software, a program, an application **1520**, an applet, an app, or other executable code) for causing the machine **1600** to perform any one or more of the methodologies discussed herein may be executed. For example, the instructions **1616** may cause the machine **1600** to execute the flow diagrams of **FIGs. 1-14**. Additionally, or alternatively, the instructions **1616** may implement various

modules of **FIGs. 1-14**, and so forth. The instructions **1616** transform the general, non-programmed machine **1600** into a particular machine **1600** programmed to carry out the described and illustrated functions in the manner described. In alternative embodiments, the machine **1600** operates as a standalone device or may be coupled (e.g., networked) to other machines. In a networked deployment, the machine **1600** may operate in the capacity of a server machine or a client machine in a server-client network environment, or as a peer machine in a peer-to-peer (or distributed) network environment. The machine **1600** may comprise, but not be limited to, a server computer, a client computer, a personal computer (PC), a tablet computer, a laptop computer, a netbook, a set-top box (STB), a personal digital assistant (PDA), an entertainment media system, a cellular telephone, a smart phone, a mobile device, a wearable device (e.g., a smart watch), a smart home device (e.g., a smart appliance), other smart devices, a web appliance, a network router, a network switch, a network bridge, or any machine **1600** capable of executing the instructions **1616**, sequentially or otherwise, that specify actions to be taken by machine **1600**. Further, while only a single machine **1600** is illustrated, the term "machine" shall also be taken to include a collection of machines **1600** that individually or jointly execute the instructions **1616** to perform any one or more of the methodologies discussed herein.

[0090] The machine **1600** may include processors **1610**, memory **1630**, and I/O components **1650**, which may be configured to communicate with each other such as via a bus **1602**. In an example embodiment, the processors **1610** (e.g., a central processing unit (CPU), a reduced instruction set computing (RISC) processor, a complex instruction set computing (CISC) processor, a graphics processing unit (GPU), a digital signal processor (DSP), an application specific integrated circuit (ASIC), a radio-frequency integrated circuit (RFIC), another processor, or any suitable combination thereof) may include, for example, processor **1612** and processor **1614** that may execute instructions **1616**. The term "processor" is intended to include multi-core processors **1610** that may comprise two or more independent processors **1610** (sometimes referred to as "cores") that may execute instructions **1616** contemporaneously. Although **FIG. 16** shows multiple processors, **1610** the machine **1600** may include a single

processor **1610** with a single core, a single processor **1610** with multiple cores (e.g., a multi-core processor), multiple processors **1610** with a single core, multiple processors **1610** with multiples cores, or any combination thereof.

[0091] The memory/storage **1630** may include a memory **1632**, such as a main memory, or other memory storage, and a storage unit **1636**, both accessible to the processors **1610** such as via the bus **1602**. The storage unit **1636** and memory **1632** store the instructions **1616,** embodying any one or more of the methodologies or functions described herein. The instructions **1616** may also reside, completely or partially, within the memory **1632**, within the storage unit **1636**, within at least one of the processors **1610** (e.g., within the processor **1610**'s cache memory), or any suitable combination thereof, during execution thereof by the machine **1600**. Accordingly, the memory **1632**, the storage unit **1636**, and the memory of processors **1610** are examples of machine-readable media.

[0092] As used herein, "machine-readable medium" means a device able to store instructions **1616** and data temporarily or permanently and may include, but is not be limited to, random-access memory (RAM), read-only memory (ROM), buffer memory, flash memory, optical media, magnetic media, cache memory, other types of storage (e.g., erasable programmable read-only memory (EEPROM)) and/or any suitable combination thereof. The term "machine-readable medium" should be taken to include a single medium or multiple media (e.g., a centralized or distributed database, or associated caches and servers) able to store instructions **1616**. The term "machine-readable medium" shall also be taken to include any medium, or combination of multiple media, that is capable of storing instructions (e.g., instructions **1616**) for execution by a machine (e.g., machine **1600**), such that the instructions **1616**, when executed by one or more processors of the machine **1600** (e.g., processors **1610**), cause the machine **1600** to perform any one or more of the methodologies described herein. Accordingly, a "machine-readable medium" refers to a single storage apparatus or device, as well as "cloud-based" storage systems or storage networks that include multiple storage apparatus or devices.

[0093] The I/O components **1650** may include a wide variety of components to receive input, provide output, produce output, transmit information, exchange

information, capture measurements, and so on. The specific I/O components **1650** that are included in a particular machine **1600** will depend on the type of machine **1600**. For example, portable machines **1600** such as mobile phones will likely include a touch input device or other such input mechanisms, while a headless server machine **1600** will likely not include such a touch input device. It will be appreciated that the I/O components **1650** may include many other components that are not shown in **FIG. 16**. The I/O components **1650** are grouped according to functionality merely for simplifying the following discussion and the grouping is in no way limiting. In various example embodiments, the I/O components **1650** may include output components **1652** and input components **1654**. The output components **1652** may include visual components (e.g., a display such as a plasma display panel (PDP), a light emitting diode (LED) display, a liquid crystal display (LCD), a projector, or a cathode ray tube (CRT)), acoustic components (e.g., speakers), haptic components (e.g., a vibratory motor, resistance mechanisms), other signal generators, and so forth. The input components **1654** may include alphanumeric input components (e.g., a keyboard, a touch screen configured to receive alphanumeric input, a photo-optical keyboard, or other alphanumeric input components), point based input components (e.g., a mouse, a touchpad, a trackball, a joystick, a motion sensor, or other pointing instrument), tactile input components (e.g., a physical button, a touch screen that provides location and/or force of touches or touch gestures, or other tactile input components), audio input components (e.g., a microphone), and the like.

[0094] In further example embodiments, the I/O components **1650** may include biometric components **1656**, motion components **1658**, environmental components **1660**, or position components **1662** among a wide array of other components. For example, the biometric components **1656** may include components to detect expressions (e.g., hand expressions, facial expressions, vocal expressions, body gestures, or eye tracking), measure biosignals (e.g., blood pressure, heart rate, body temperature, perspiration, or brain waves), identify a person (e.g., voice identification, retinal identification, facial identification, fingerprint identification, or electroencephalogram based identification), and the like. The motion components **1658** may include

acceleration sensor components (e.g., accelerometer), gravitation sensor components, rotation sensor components (e.g., gyroscope), and so forth. The environmental components **1660** may include, for example, illumination sensor components (e.g., photometer), temperature sensor components (e.g., one or more thermometer that detect ambient temperature), humidity sensor components, pressure sensor components (e.g., barometer), acoustic sensor components (e.g., one or more microphones that detect background noise), proximity sensor components (e.g., infrared sensors that detect nearby objects), gas sensors (e.g., gas detection sensors to detection concentrations of hazardous gases for safety or to measure pollutants in the atmosphere), or other components that may provide indications, measurements, or signals corresponding to a surrounding physical environment. The position components **1662** may include location sensor components (e.g., a Global Position System (GPS) receiver component), altitude sensor components (e.g., altimeters or barometers that detect air pressure from which altitude may be derived), orientation sensor components (e.g., magnetometers), and the like.

[0095] Communication may be implemented using a wide variety of technologies. The I/O components **1650** may include communication components **1664** operable to couple the machine **1600** to a network **1680** or devices **1670** via coupling **1682** and coupling **1672** respectively. For example, the communication components **1664** may include a network interface component or other suitable device to interface with the network **1680**. In further examples, communication components **1664** may include wired communication components, wireless communication components, cellular communication components, near field communication (NFC) components, Bluetooth® components (e.g., Bluetooth® Low Energy), Wi-Fi® components, and other communication components to provide communication via other modalities. The devices **1670** may be another machine **1600** or any of a wide variety of peripheral devices (e.g., a peripheral device coupled via a Universal Serial Bus (USB)).

[0096] Moreover, the communication components **1664** may detect identifiers or include components operable to detect identifiers. For example, the communication components **1664** may include radio frequency identification

(RFID) tag reader components, NFC smart tag detection components, optical reader components (e.g., an optical sensor to detect one-dimensional bar codes such as Universal Product Code (UPC) bar code, multi-dimensional bar codes such as Quick Response (QR) code, Aztec code, Data Matrix, Dataglyph, MaxiCode, PDF417, Ultra Code, UCC RSS-2D bar code, and other optical codes), or acoustic detection components (e.g., microphones to identify tagged audio signals). In addition, a variety of information may be derived via the communication components **1664**, such as location via Internet Protocol (IP) geo-location, location via Wi-Fi® signal triangulation, location via detecting a NFC beacon signal that may indicate a particular location, and so forth.

TRANSMISSION MEDIUM

[0097] In various example embodiments, one or more portions of the network **1680** may be an ad hoc network, an intranet, an extranet, a virtual private network (VPN), a local area network (LAN), a wireless LAN (WLAN), a wide area network (WAN), a wireless WAN (WWAN), a metropolitan area network (MAN), the Internet, a portion of the Internet, a portion of the Public Switched Telephone Network (PSTN), a plain old telephone service (POTS) network, a cellular telephone network, a wireless network, a Wi-Fi® network, another type of network, or a combination of two or more such networks. For example, the network **1680** or a portion of the network **1680** may include a wireless or cellular network and the coupling **1682** may be a Code Division Multiple Access (CDMA) connection, a Global System for Mobile communications (GSM) connection, or other type of cellular or wireless coupling. In this example, the coupling **1682** may implement any of a variety of types of data transfer technology, such as Single Carrier Radio Transmission Technology (1xRTT), Evolution-Data Optimized (EVDO) technology, General Packet Radio Service (GPRS) technology, Enhanced Data rates for GSM Evolution (EDGE) technology, third Generation Partnership Project (3GPP) including 3G, fourth generation wireless (4G) networks, Universal Mobile Telecommunications System (UMTS), High Speed Packet Access (HSPA), Worldwide Interoperability for Microwave Access (WiMAX), Long Term Evolution (LTE) standard, others defined by various standard setting organizations, other long

range protocols, or other data transfer technology.

[0098] The instructions **1616** may be transmitted or received over the network **1680** using a transmission medium via a network interface device (e.g., a network interface component included in the communication components **1664**) and utilizing any one of a number of well-known transfer protocols (e.g., hypertext transfer protocol (HTTP)). Similarly, the instructions **1616** may be transmitted or received using a transmission medium via the coupling **1672** (e.g., a peer-to-peer coupling) to devices **1670**. The term "transmission medium" shall be taken to include any intangible medium that is capable of storing, encoding, or carrying instructions **1616** for execution by the machine **1600**, and includes digital or analog communications signals or other intangible medium to facilitate communication of such software. A transmission medium is one embodiment of a machine-readable medium.

LANGUAGE

[0099] Throughout this specification, plural instances may implement components, operations, or structures described as a single instance. Although individual operations of one or more methods are illustrated and described as separate operations, one or more of the individual operations may be performed concurrently, and nothing requires that the operations be performed in the order illustrated. Structures and functionality presented as separate components in example configurations may be implemented as a combined structure or component. Similarly, structures and functionality presented as a single component may be implemented as separate components. These and other variations, modifications, additions, and improvements fall within the scope of the subject matter herein.

[00100] Although an overview of the inventive subject matter has been described with reference to specific example embodiments, various modifications and changes may be made to these embodiments without departing from the broader scope of embodiments of the present disclosure. Such embodiments of the inventive subject matter may be referred to herein, individually or collectively, by the term "invention" merely for convenience and without intending to voluntarily limit the scope of this application to any single

disclosure or inventive concept if more than one is, in fact, disclosed.

[00101] The embodiments illustrated herein are described in sufficient detail to enable those skilled in the art to practice the teachings disclosed. Other embodiments may be used and derived therefrom, such that structural and logical substitutions and changes may be made without departing from the scope of this disclosure. The Detailed Description, therefore, is not to be taken in a limiting sense, and the scope of various embodiments is defined only by the appended claims, along with the full range of equivalents to which such claims are entitled.

As used herein, the term "or" may be construed in either an inclusive or exclusive sense. Moreover, plural instances may be provided for resources, operations, or structures described herein as a single instance. Additionally, boundaries between various resources, operations, modules, engines, and data stores are somewhat arbitrary, and particular operations are illustrated in a context of specific illustrative configurations. Other allocations of functionality are envisioned and may fall within a scope of various embodiments of the present disclosure. In general, structures and functionality presented as separate resources in the example configurations may be implemented as a combined structure or resource. Similarly, structures and functionality presented as a single resource may be implemented as separate resources. These and other variations, modifications, additions, and improvements fall within a scope of embodiments of the present disclosure as represented by the appended claims. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

CLAIMS

1. A system comprising:

a feedback analysis module executable by one or more processors and configured to:

receive user feedback on a purchased item from a user;

identify attributes of the purchased item;

determine relevant attributes from the attributes, the determination of relevant attributes being based on user information regarding the user;

a comment generator executable by one or more processors and configured to:

generate comments for the relevant attributes based on the user feedback; and

cause the comments to be displayed to the user for selection and posting.

2. The system of claim 1, the determining comprising:

obtaining user information regarding the user;

determining a user category for the user based on the user information;

weighting the identified attributes based on the user category; and

selecting the *n* top attributes according to weight as relevant attributes.

3. The system of claim 2, the weighting the identified attributes also being based on item information.

4. The system of claim 3, the item information including an item category.

5. The system of claim 2, the determining a user category including matching the user information to profiling criteria in a data structure corresponding to a user category in a user category database.

6. The system of claim 1, the generating of comments including selecting from preconfigured comments for various attributes and user feedback combinations stored in a comment database coupled to the comment generator.

7. The system of claim 1, the generating of comments including dynamically creating comments based on rules stored in a rule database coupled to the comment generator.

8. A method comprising:

receiving user feedback on a purchased item from a user;

identifying attributes of the purchased item;

determining relevant attributes from the attributes, the determination of relevant attributes being based on user information regarding the user;

generating comments for the relevant attributes based on the user feedback; and

causing the comments to be displayed to the user for selection and posting.

9. The method of claim 8, the determining comprising:

obtaining user information regarding the user;

determining a user category for the user based on the user information;

weighting the identified attributes based on the user category; and

selecting *n* top attributes according to weight as relevant attributes.

10. The method of claim 9, the weighting the identified attributes also being based on item information.

11. The method of claim 10, the item information including an item category.

12. The method of claim 9, the determining the user category including matching the user information to profiling criteria in a data structure corresponding to the user category in a user category database.

13. The method of claim 8, wherein the user feedback includes an overall rating of satisfaction with the purchased item.

14. The method of claim 8, wherein the user feedback includes multiple ratings for specific categories of satisfaction with the purchased item.

15. A machine-readable medium carrying instructions, which when implemented by one or more machines, cause the one or more machines to perform operations comprising:

identifying attributes of a purchased item;

determining relevant attributes from the attributes, the determination of relevant attributes being based on user information regarding a user who purchased the purchased item;

generating comments for the relevant attributes and

causing the comments to be displayed to the user for selection and posting.

16. The machine-readable medium of claim 15, the determining comprising:

obtaining user information regarding the user;

determining a user category for the user based on the user information;

weighting the identified attributes based on the user category; and

selecting the *n* top attributes according to weight as relevant attributes.

17. The machine-readable medium of claim 16, the weighting the identified attributes also being based on item information.

18. The machine-readable medium of claim 17, the item information including item category.

19. The machine-readable medium of claim 16, the determining the user category including matching the user information to profiling criteria in a data structure corresponding to the user category in a user category database.

20. The machine-readable medium of claim 15, wherein the user feedback includes an overall rating of satisfaction with the purchased item.

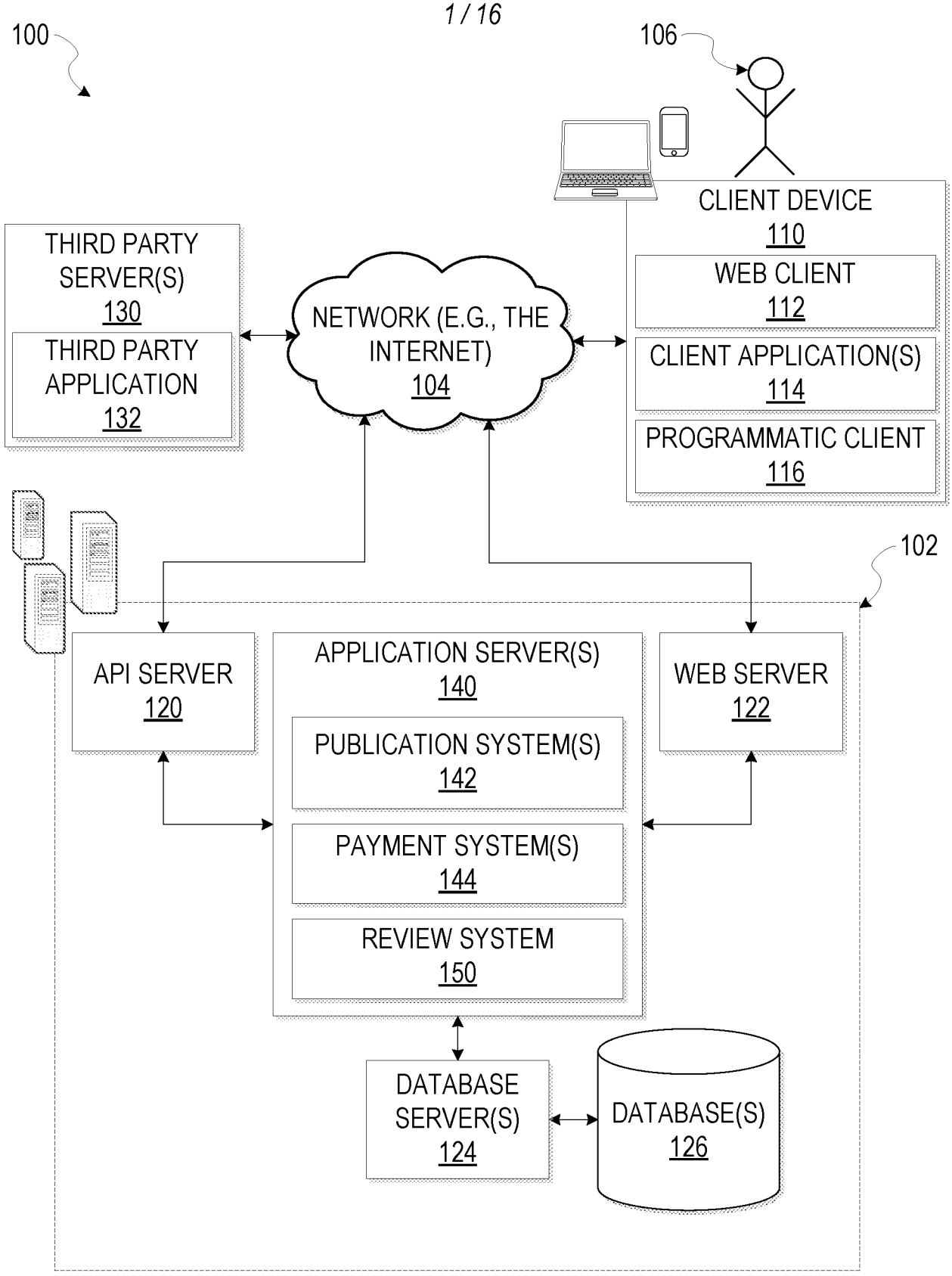

100
106
CLIENT DEVICE
110
WEB CLIENT
112
CLIENT APPLICATION(S)
114
PROGRAMMATIC CLIENT
116
THIRD PARTY SERVER(S)
130
THIRD PARTY APPLICATION
132
NETWORK (E.G., THE INTERNET)
104
102
API SERVER
120
APPLICATION SERVER(S)
140
PUBLICATION SYSTEM(S)
142
PAYMENT SYSTEM(S)
144
REVIEW SYSTEM
150
WEB SERVER
122
DATABASE SERVER(S)
124
DATABASE(S)
126

FIG. 1

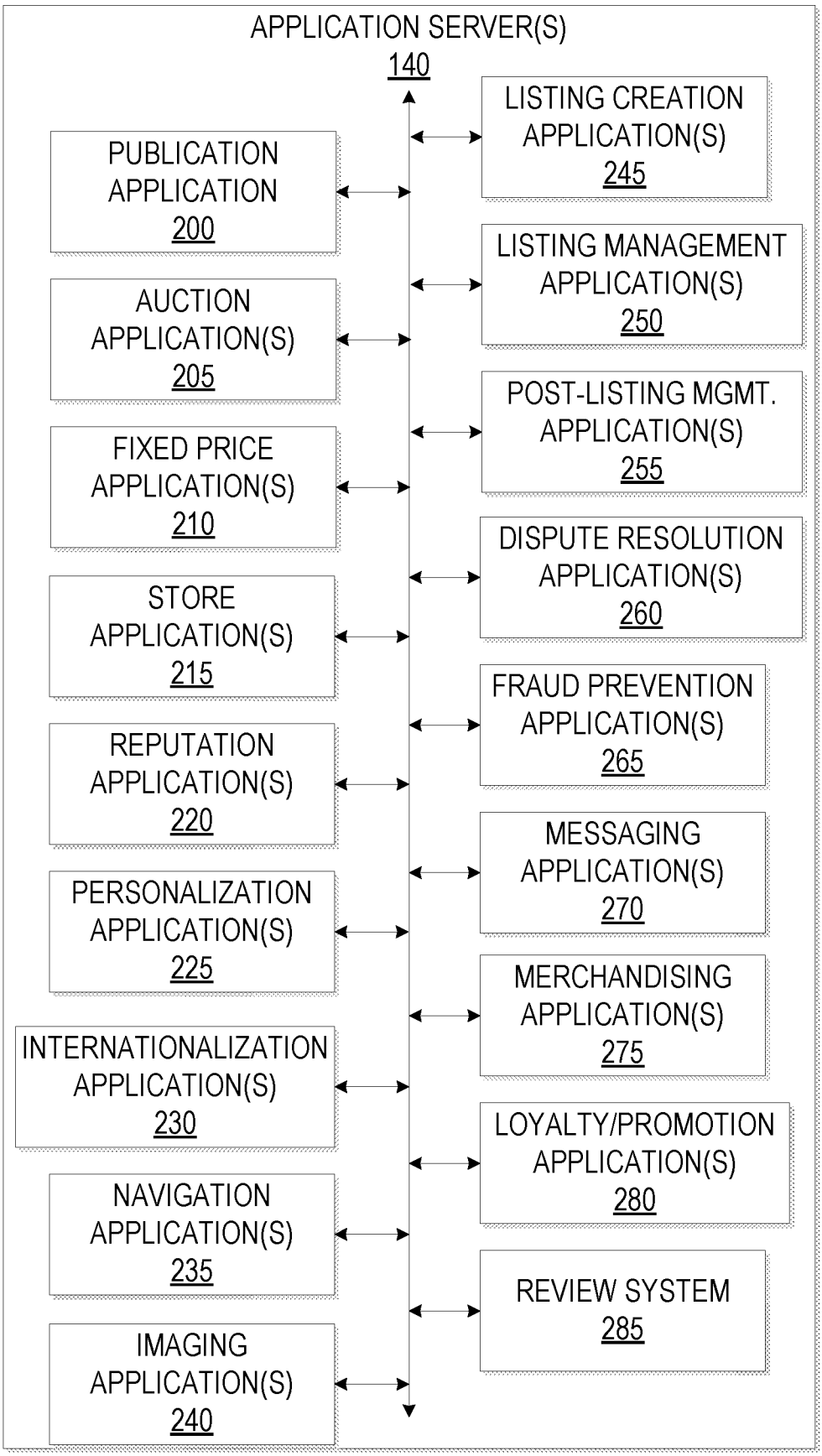

APPLICATION SERVER(S)
140
PUBLICATION APPLICATION 200
AUCTION APPLICATION(S) 205
FIXED PRICE APPLICATION(S) 210
STORE APPLICATION(S) 215
REPUTATION APPLICATION(S) 220
PERSONALIZATION APPLICATION(S) 225
INTERNATIONALIZATION APPLICATION(S) 230
NAVIGATION APPLICATION(S) 235
IMAGING APPLICATION(S) 240
LISTING CREATION APPLICATION(S) 245
LISTING MANAGEMENT APPLICATION(S) 250
POST-LISTING MGMT. APPLICATION(S) 255
DISPUTE RESOLUTION APPLICATION(S) 260
FRAUD PREVENTION APPLICATION(S) 265
MESSAGING APPLICATION(S) 270
MERCHANDISING APPLICATION(S) 275
LOYALTY/PROMOTION APPLICATION(S) 280
REVIEW SYSTEM 285

FIG. 2

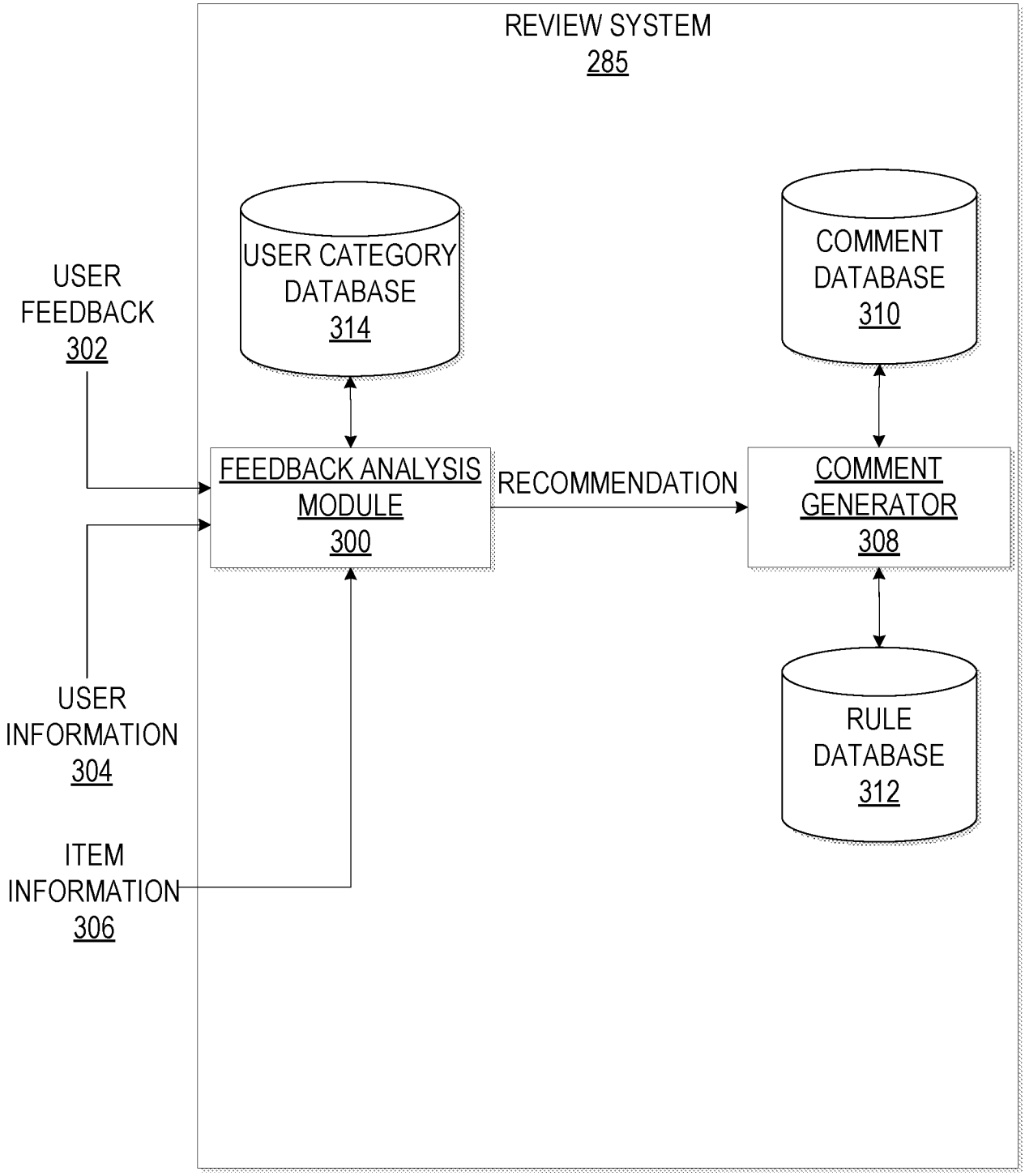

REVIEW SYSTEM
285
USER CATEGORY DATABASE
314
COMMENT DATABASE
310
USER FEEDBACK
302
FEEDBACK ANALYSIS MODULE
300
RECOMMENDATION
COMMENT GENERATOR
308
USER INFORMATION
304
RULE DATABASE
312
ITEM INFORMATION
306

FIG. 3

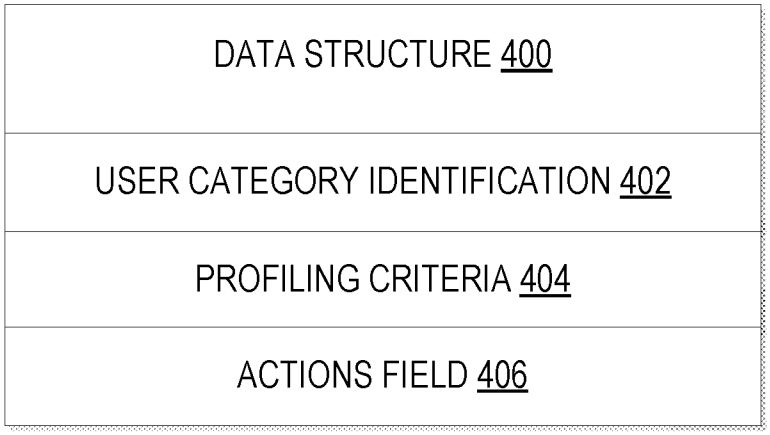

DATA STRUCTURE 400
USER CATEGORY IDENTIFICATION 402
PROFILING CRITERIA 404
ACTIONS FIELD 406

FIG. 4

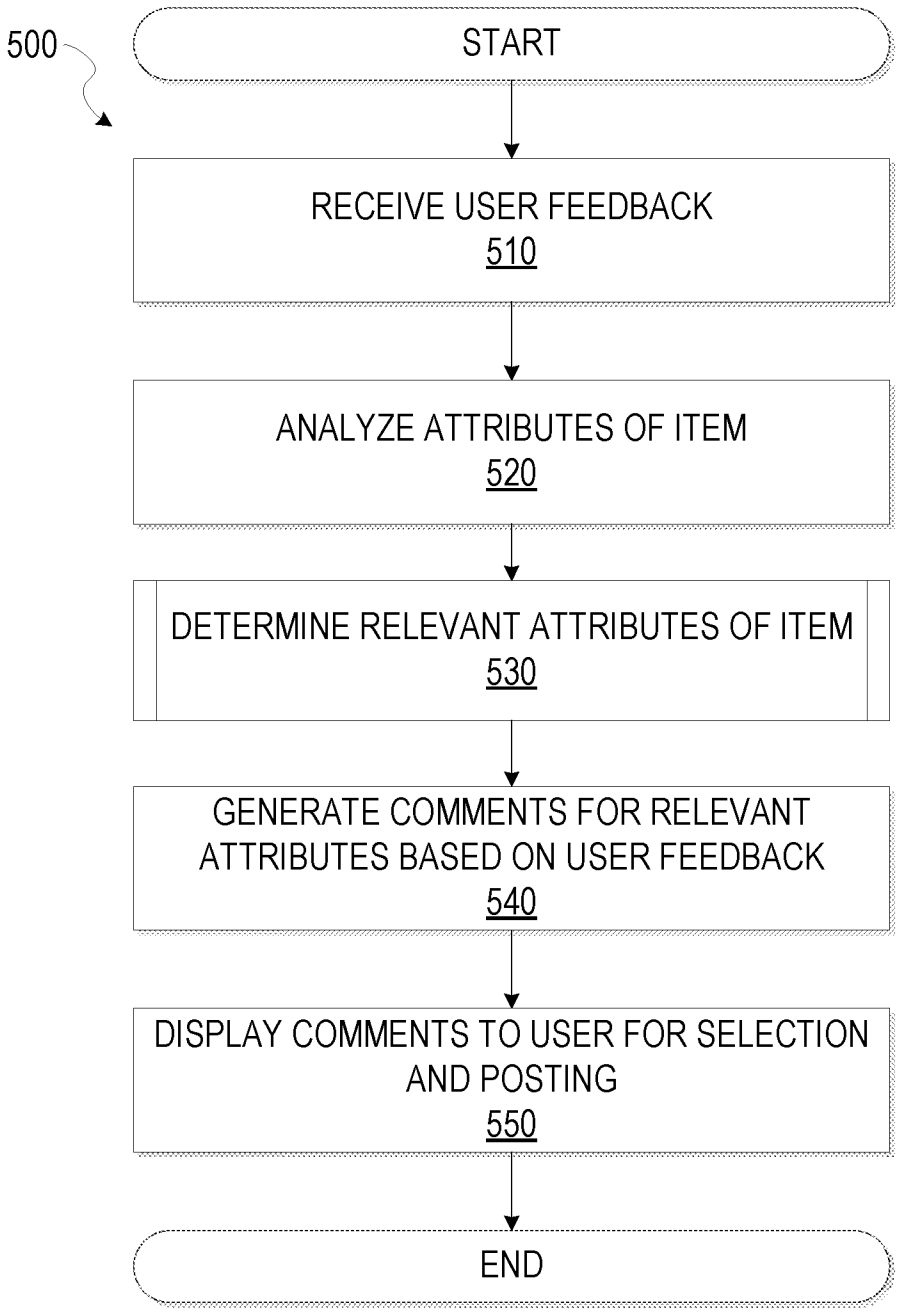

500
START
RECEIVE USER FEEDBACK
510
ANALYZE ATTRIBUTES OF ITEM
520
DETERMINE RELEVANT ATTRIBUTES OF ITEM
530
GENERATE COMMENTS FOR RELEVANT ATTRIBUTES BASED ON USER FEEDBACK
540
DISPLAY COMMENTS TO USER FOR SELECTION AND POSTING
550
END

FIG. 5

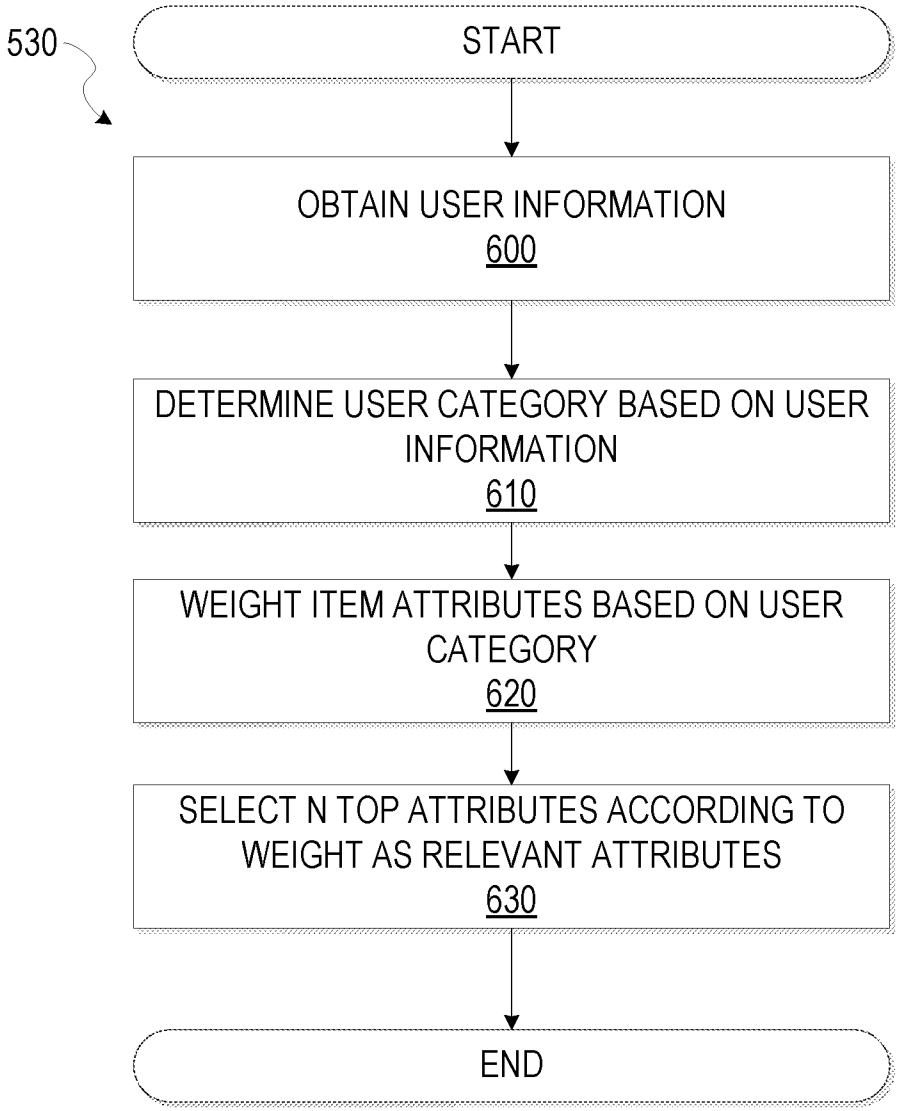

530
START
OBTAIN USER INFORMATION
600
DETERMINE USER CATEGORY BASED ON USER INFORMATION
610
WEIGHT ITEM ATTRIBUTES BASED ON USER CATEGORY
620
SELECT N TOP ATTRIBUTES ACCORDING TO WEIGHT AS RELEVANT ATTRIBUTES
630
END

FIG. 6

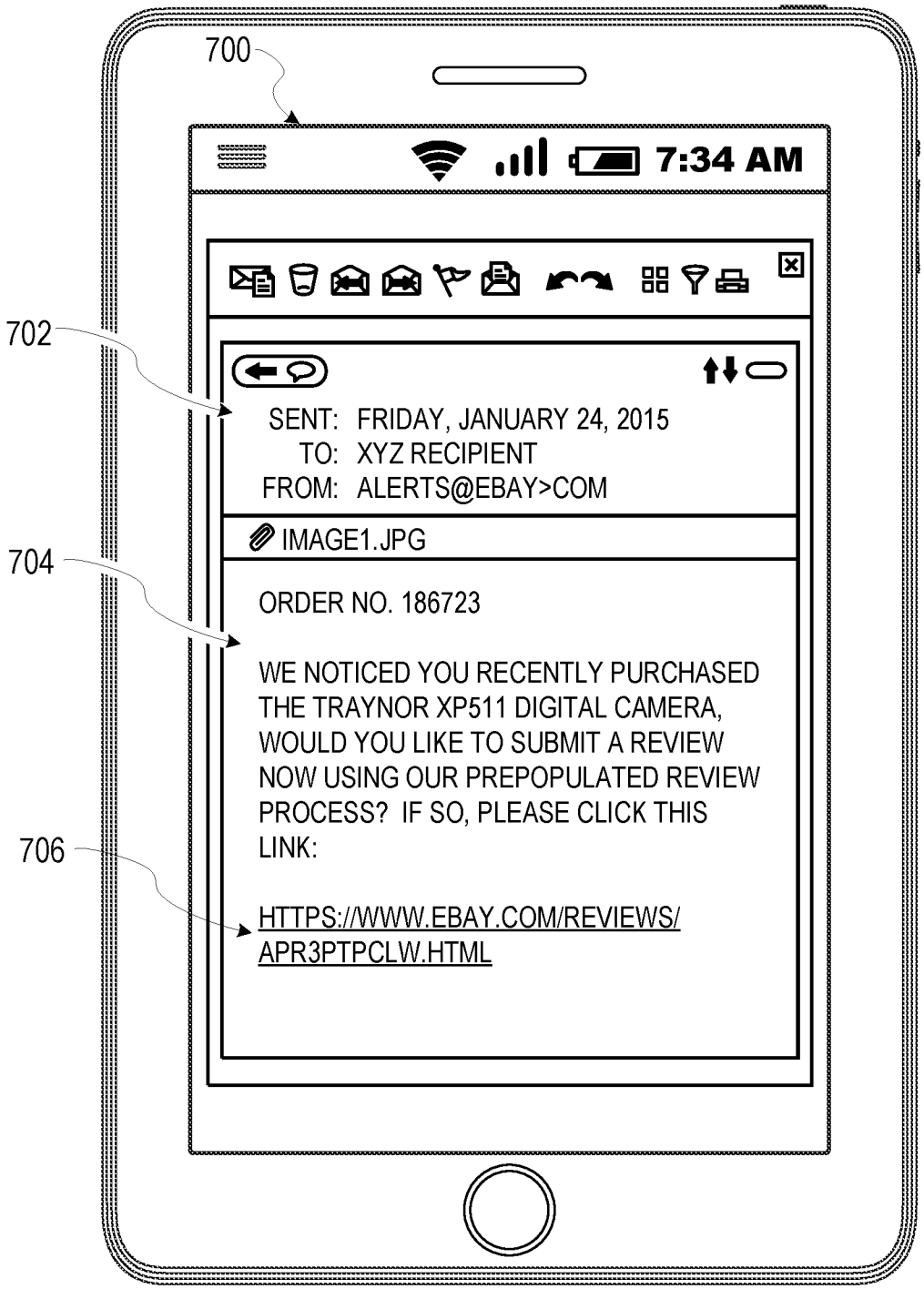

700
7:34 AM
702
SENT: FRIDAY, JANUARY 24, 2015
TO: XYZ RECIPIENT
FROM: ALERTS@EBAY>COM
IMAGE1.JPG
704
ORDER NO. 186723
WE NOTICED YOU RECENTLY PURCHASED THE TRAYNOR XP511 DIGITAL CAMERA, WOULD YOU LIKE TO SUBMIT A REVIEW NOW USING OUR PREPOPULATED REVIEW PROCESS? IF SO, PLEASE CLICK THIS LINK:
706
HTTPS://WWW.EBAY.COM/REVIEWS/APR3PTPCLW.HTML

FIG. 7

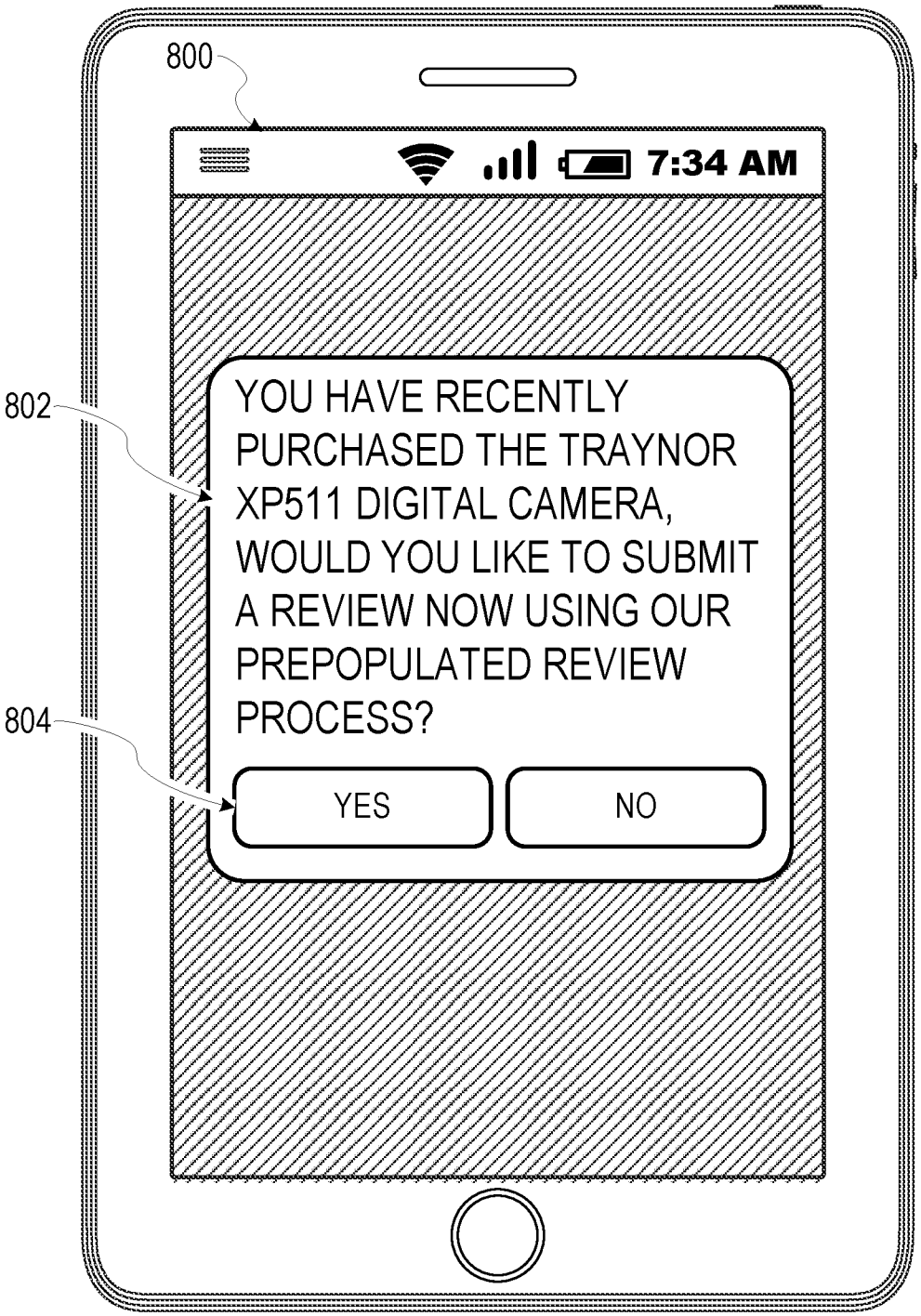

800
7:34 AM
802
YOU HAVE RECENTLY PURCHASED THE TRAYNOR XP511 DIGITAL CAMERA, WOULD YOU LIKE TO SUBMIT A REVIEW NOW USING OUR PREPOPULATED REVIEW PROCESS?
804
YES
NO

FIG. 8

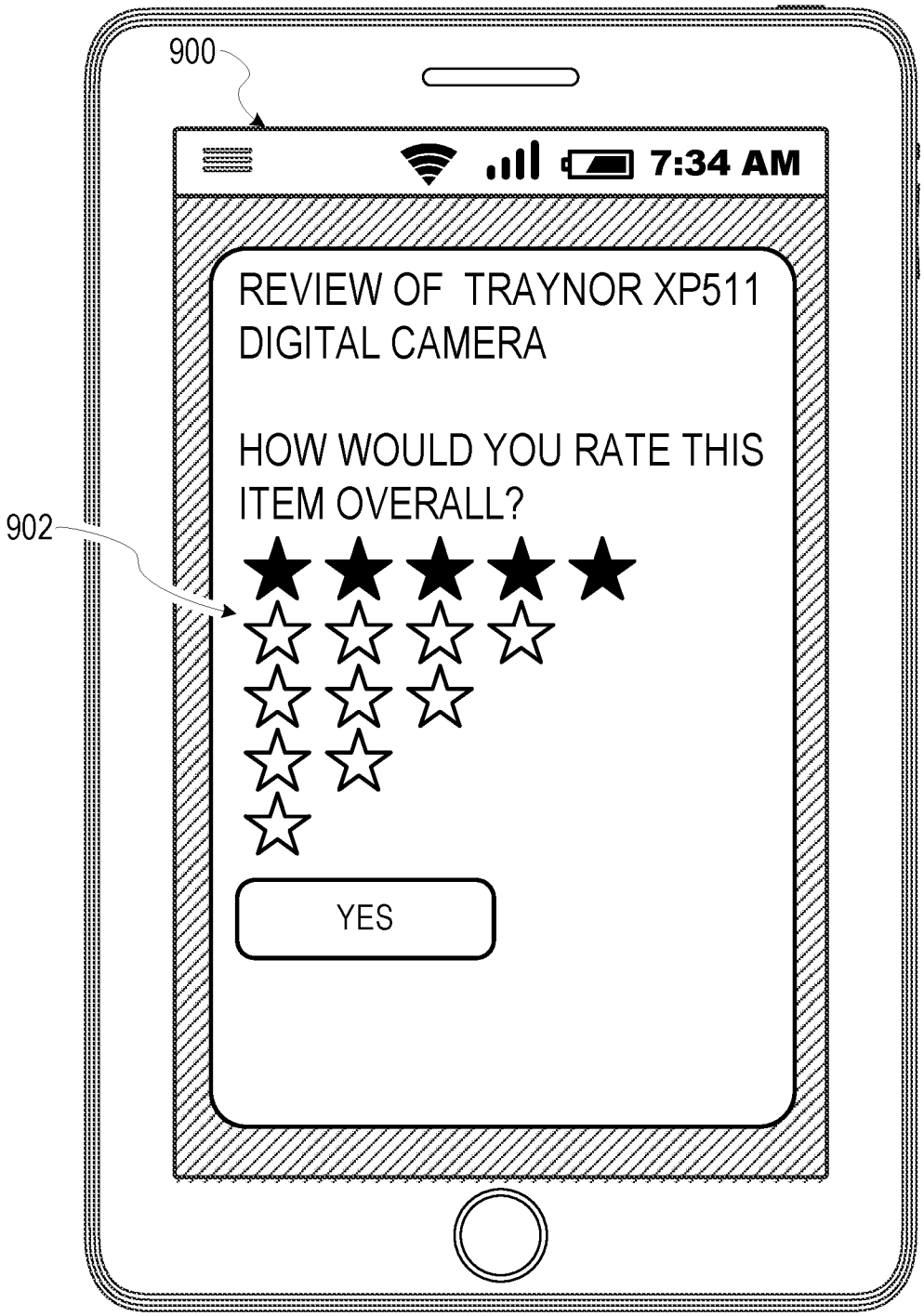

900
7:34 AM
REVIEW OF TRAYNOR XP511 DIGITAL CAMERA
HOW WOULD YOU RATE THIS ITEM OVERALL?
902
YES

FIG. 9

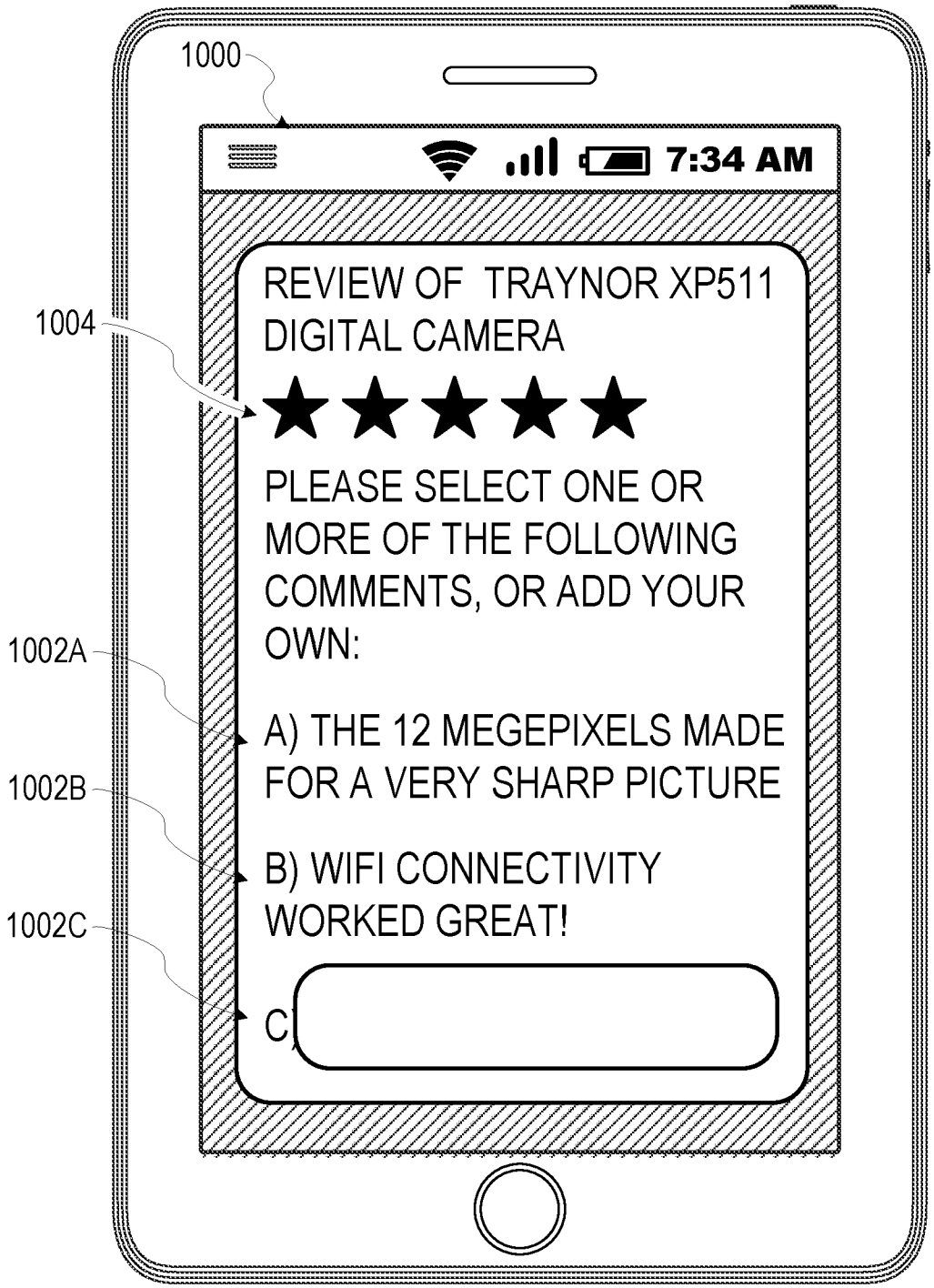

1000
7:34 AM
1004
REVIEW OF TRAYNOR XP511 DIGITAL CAMERA
PLEASE SELECT ONE OR MORE OF THE FOLLOWING COMMENTS, OR ADD YOUR OWN:
1002A
A) THE 12 MEGEPIXELS MADE FOR A VERY SHARP PICTURE
1002B
B) WIFI CONNECTIVITY WORKED GREAT!
1002C
C)

FIG. 10

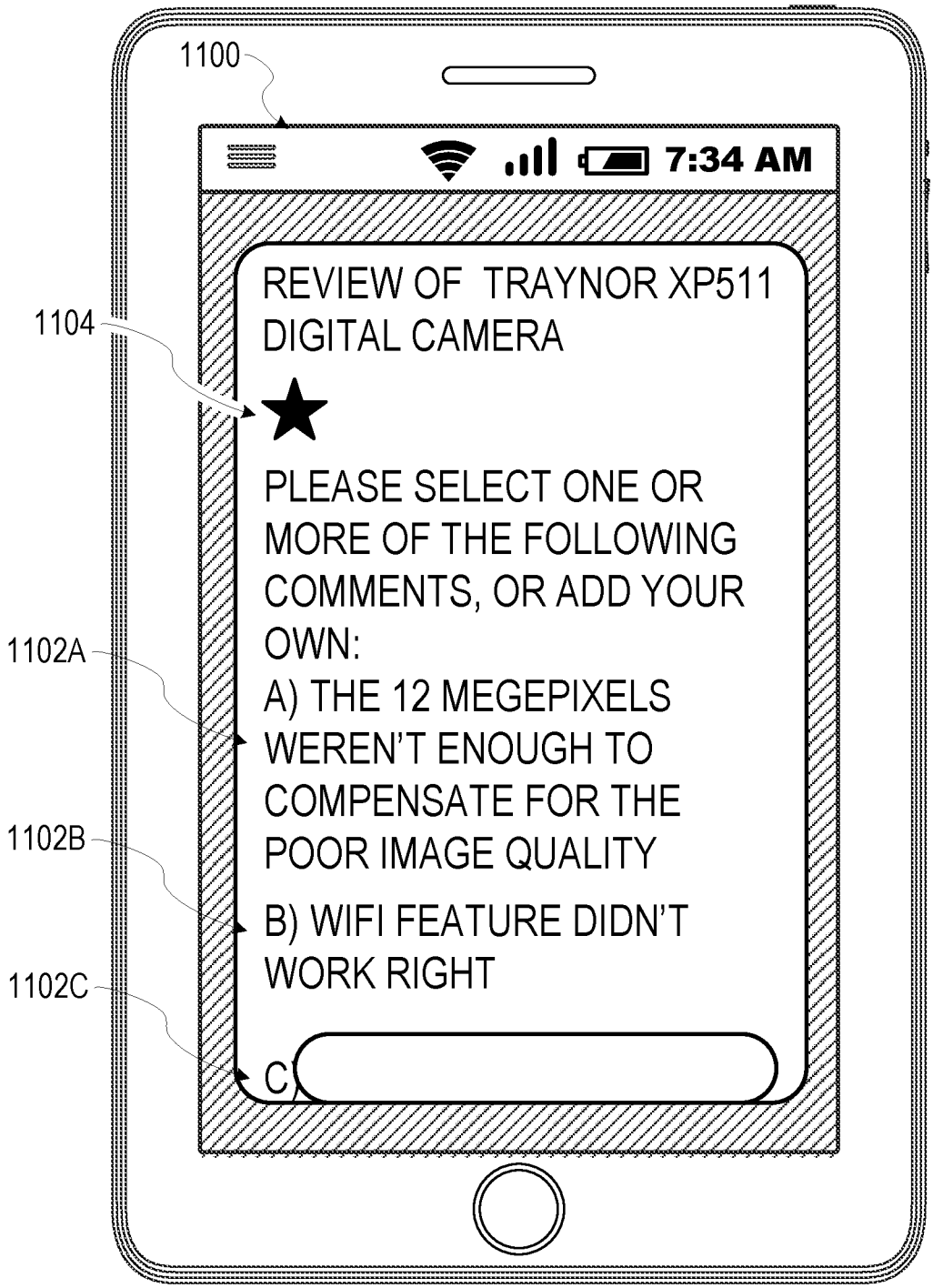

1100
7:34 AM
1104
REVIEW OF TRAYNOR XP511 DIGITAL CAMERA
PLEASE SELECT ONE OR MORE OF THE FOLLOWING COMMENTS, OR ADD YOUR OWN:
1102A
A) THE 12 MEGEPIXELS WEREN'T ENOUGH TO COMPENSATE FOR THE POOR IMAGE QUALITY
1102B
B) WIFI FEATURE DIDN'T WORK RIGHT
1102C
C)

FIG. 11

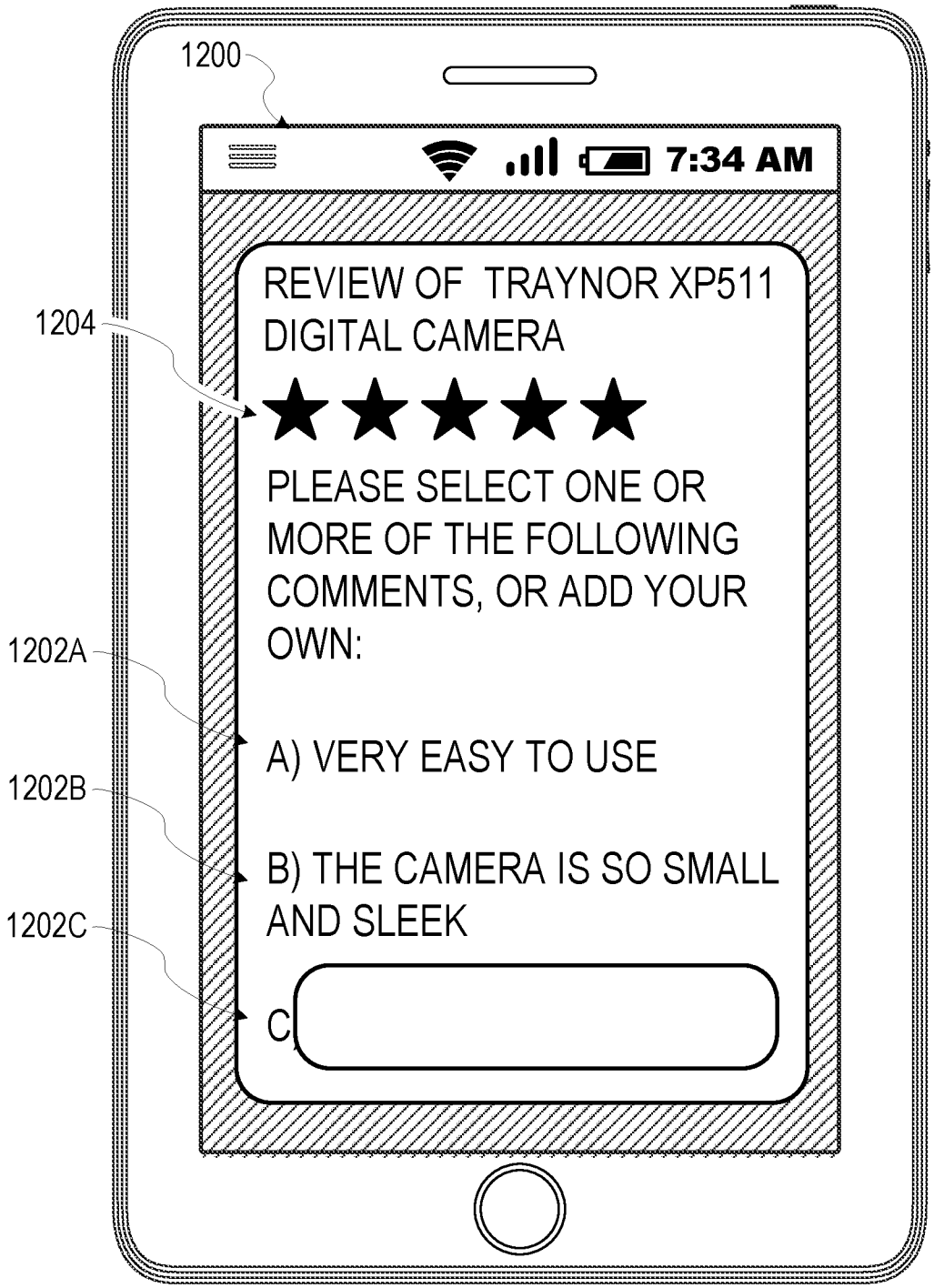

1200
7:34 AM
1204
REVIEW OF TRAYNOR XP511 DIGITAL CAMERA
PLEASE SELECT ONE OR MORE OF THE FOLLOWING COMMENTS, OR ADD YOUR OWN:
1202A
A) VERY EASY TO USE
1202B
B) THE CAMERA IS SO SMALL AND SLEEK
1202C
C)

FIG. 12

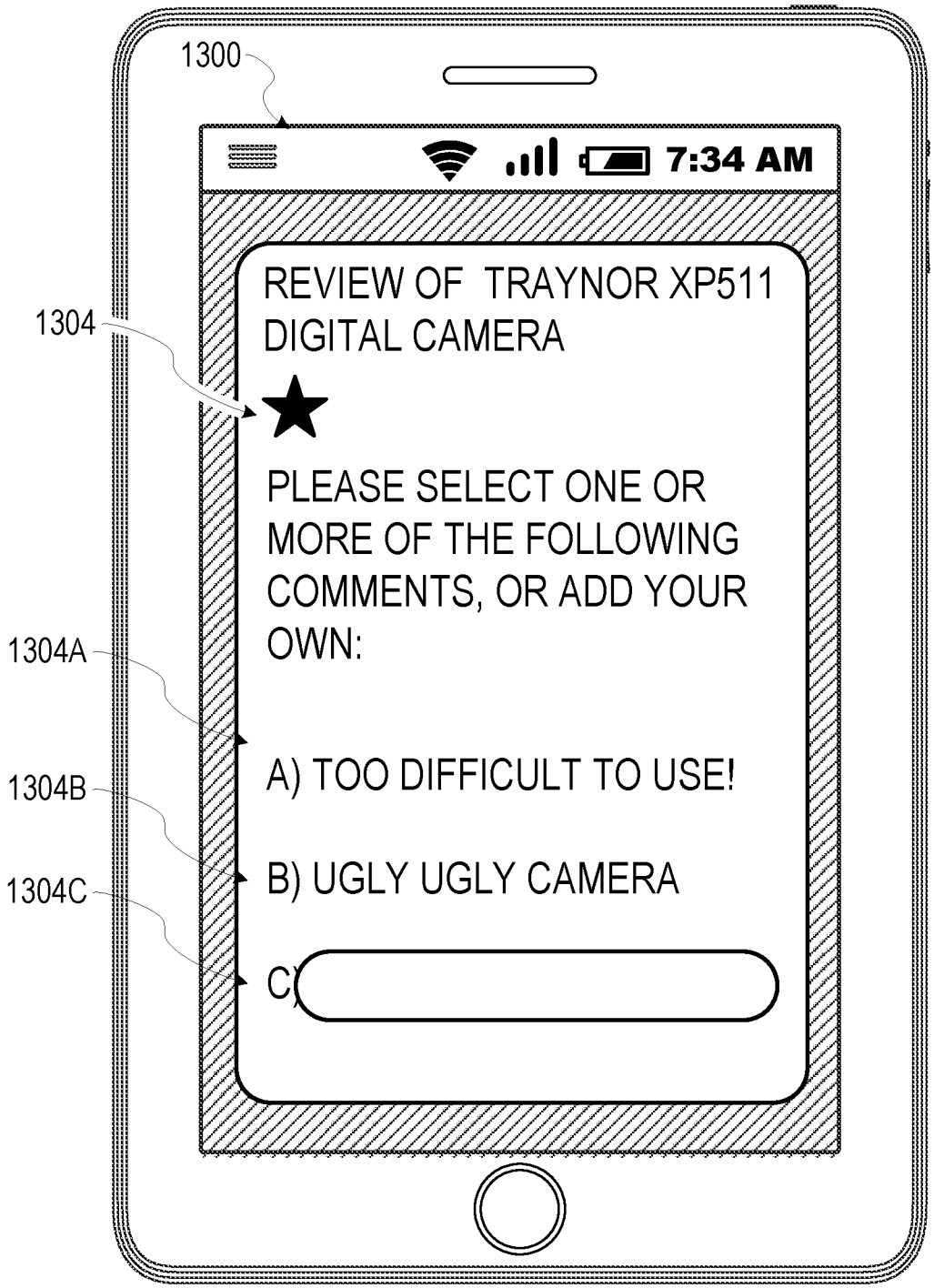

1300
7:34 AM
1304
REVIEW OF TRAYNOR XP511 DIGITAL CAMERA
PLEASE SELECT ONE OR MORE OF THE FOLLOWING COMMENTS, OR ADD YOUR OWN:
1304A
A) TOO DIFFICULT TO USE!
1304B
B) UGLY UGLY CAMERA
1304C
C)

FIG. 13

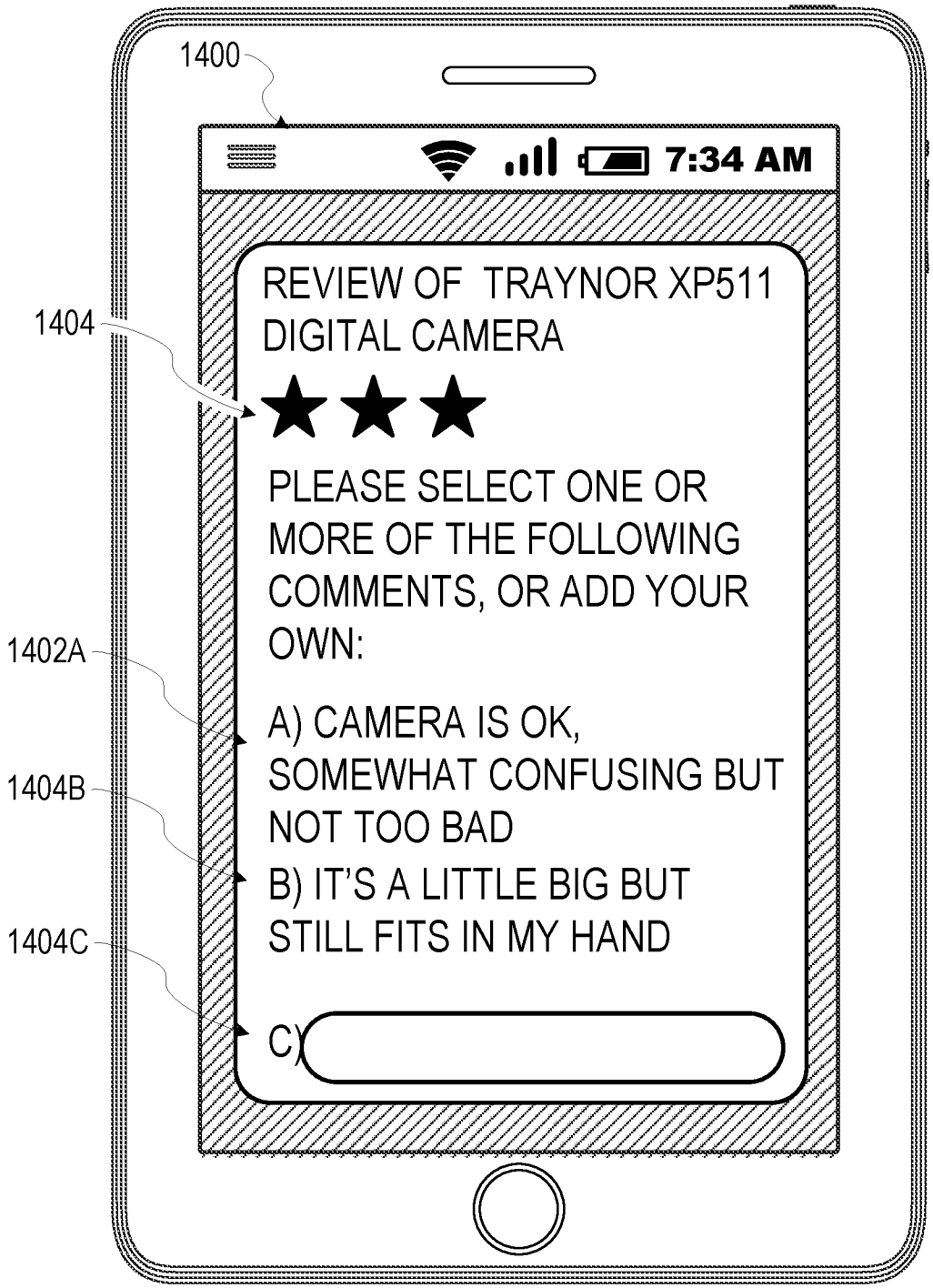

1400
7:34 AM
1404
REVIEW OF TRAYNOR XP511 DIGITAL CAMERA
PLEASE SELECT ONE OR MORE OF THE FOLLOWING COMMENTS, OR ADD YOUR OWN:
1402A
A) CAMERA IS OK, SOMEWHAT CONFUSING BUT NOT TOO BAD
1404B
B) IT'S A LITTLE BIG BUT STILL FITS IN MY HAND
1404C
C)

FIG. 14

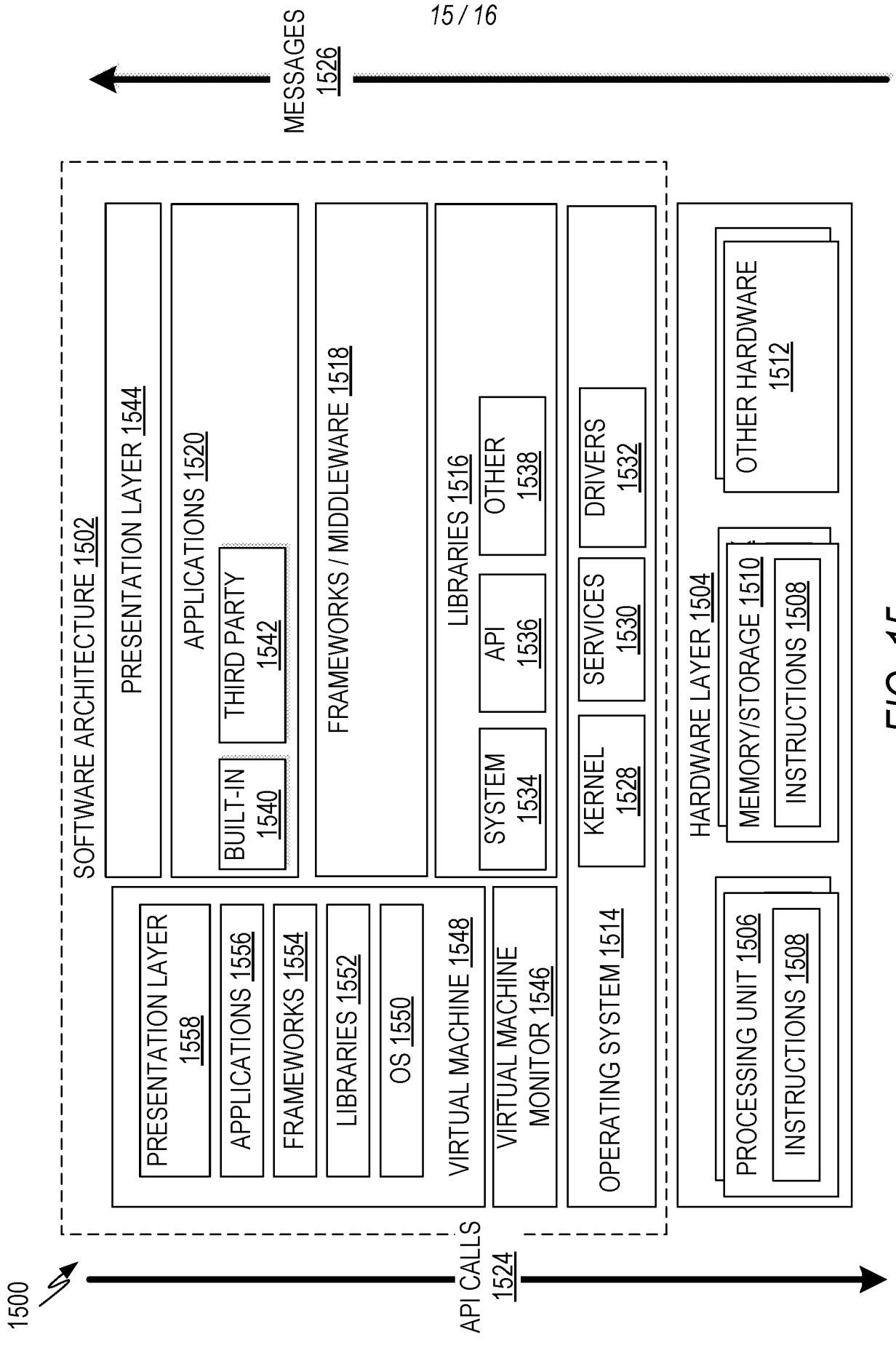

1500
API CALLS 1524
MESSAGES 1526
SOFTWARE ARCHITECTURE 1502
PRESENTATION LAYER 1544
APPLICATIONS 1520
BUILT-IN 1540
THIRD PARTY 1542
FRAMEWORKS / MIDDLEWARE 1518
LIBRARIES 1516
SYSTEM 1534
API 1536
OTHER 1538
KERNEL 1528
SERVICES 1530
DRIVERS 1532
OPERATING SYSTEM 1514
VIRTUAL MACHINE 1548
PRESENTATION LAYER 1558
APPLICATIONS 1556
FRAMEWORKS 1554
LIBRARIES 1552
OS 1550
VIRTUAL MACHINE MONITOR 1546
HARDWARE LAYER 1504
PROCESSING UNIT 1506
INSTRUCTIONS 1508
MEMORY/STORAGE 1510
INSTRUCTIONS 1508
OTHER HARDWARE 1512

FIG. 15

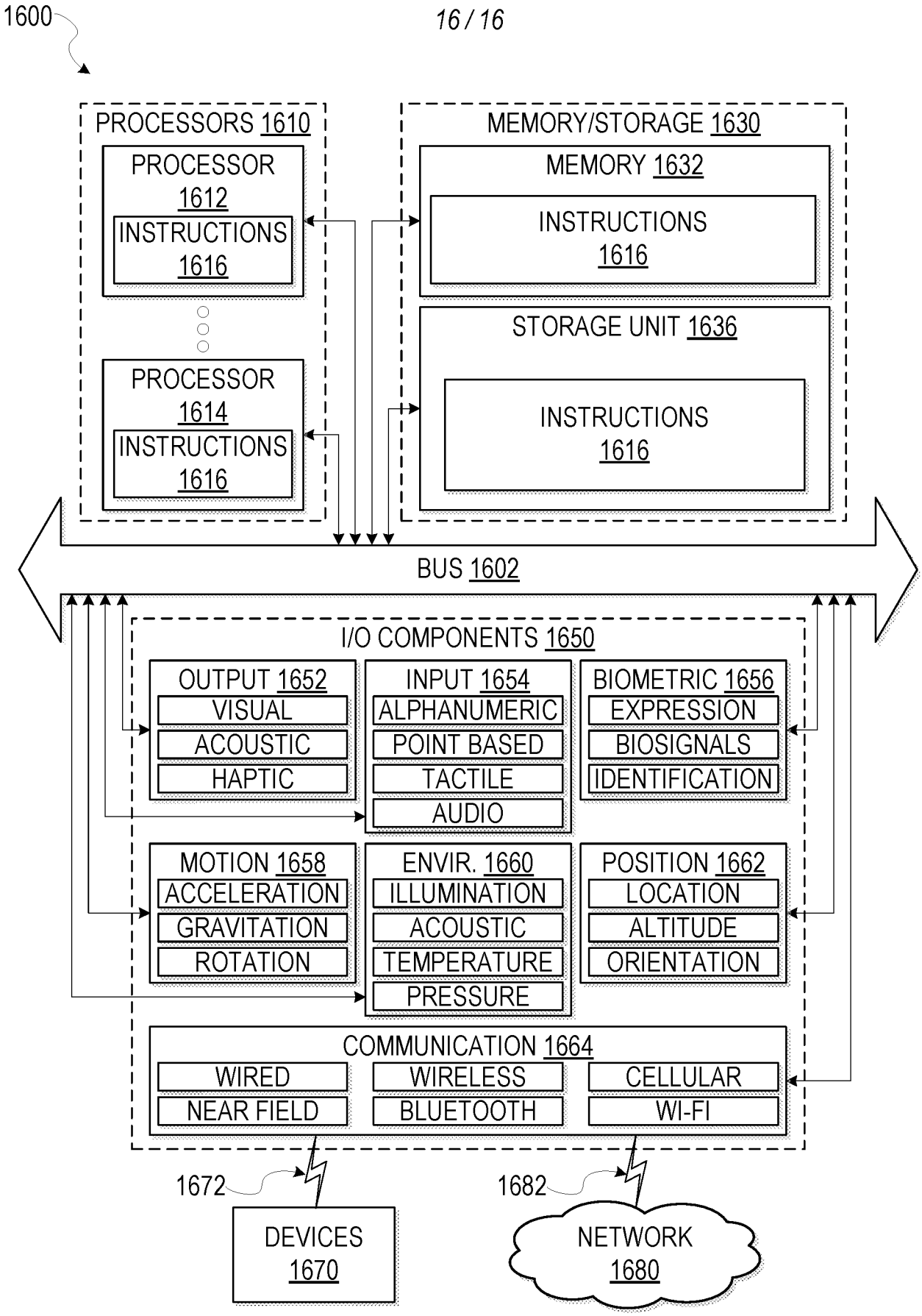

1600
PROCESSORS 1610
PROCESSOR 1612
INSTRUCTIONS 1616
PROCESSOR 1614
INSTRUCTIONS 1616
MEMORY/STORAGE 1630
MEMORY 1632
INSTRUCTIONS 1616
STORAGE UNIT 1636
INSTRUCTIONS 1616
BUS 1602
I/O COMPONENTS 1650
OUTPUT 1652
VISUAL
ACOUSTIC
HAPTIC
INPUT 1654
ALPHANUMERIC
POINT BASED
TACTILE
AUDIO
BIOMETRIC 1656
EXPRESSION
BIOSIGNALS
IDENTIFICATION
MOTION 1658
ACCELERATION
GRAVITATION
ROTATION
ENVIR. 1660
ILLUMINATION
ACOUSTIC
TEMPERATURE
PRESSURE
POSITION 1662
LOCATION
ALTITUDE
ORIENTATION
COMMUNICATION 1664
WIRED
NEAR FIELD
WIRELESS
BLUETOOTH
CELLULAR
WI-FI
1672
DEVICES 1670
1682
NETWORK 1680

FIG. 16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/019294

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06Q 30/00 (2016.01)
CPC - G06Q 30/02/03 (2016.01)
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)
IPC(8) - G06Q 30/00 (2016.01)
CPC - G06Q 30/02; G06Q-030/02/03 (2016.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC 705/7.290, 7.320, 26.700 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase, Orbit, Google Patents, Google Scholar, Google
Search terms used: product feedback user select writing review post publish

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 7,885,863 B2 (OJAKAAR et al) 08 February 2011 (08.02.2011) entire document	1, 8, 13-15, 20 --- 2-7, 9-12, 16-19
Y	US 7,840,448 B2 (MUSGROVE et al) 23 November 2010 (23.11.2010) entire document	2-7, 9-12, 16-19
A	US 20110004508 A1 (HUANG et al) 06 January 2011 (06.01.2011) entire document	1-20
A	US 20100169317 A1 (WANG et al) 01 July 2010 (01.07.2010) entire document	1-20

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