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Product unboxing, setup, and registration using a low power beacon

ABSTRACT

Products are typically shipped with paper manuals and guides with instructions regarding setup, registration, and operation. Paper-based instructions can be expensive and inefficient and lack customization. Moreover, the experience of dealing with paper while setting up and operating a product can be cumbersome and inconvenient.

This disclosure describes use of a small low power transmitter within product packaging to transmit a signal upon unboxing of the product. The signal includes a product identifier. Upon receiving the identifier, appropriate product information is retrieved by a nearby receiving device to trigger relevant actions. For example, the user is provided with customized multimedia guidance for setting up and using the product.

KEYWORDS

- Product unboxing
- Product setup
- Product registration
- Low power transmitter
- Beacon
- Product packaging

BACKGROUND

A significant proportion of consumer products are shipped with paper manuals and guides with instructions regarding setup or assembly, registration, and operation of the product. Paper is heavy and adds to shipping costs. Moreover, paper-based instructions can be expensive to produce and contribute to paper waste. Additionally, paper-based manuals lack customization

that takes into account the user's context. Further, it may be cumbersome and inconvenient for the user to read materials on paper while setting up or using the product. For example, assembling furniture may require the use of both arms, thus making it difficult, if not impossible, to read assembly instructions on paper at the time of assembly.

DESCRIPTION

The techniques of this disclosure enable replacement of paper product manuals and guides with corresponding materials in customized multimedia form. The elimination of paper instructions is achieved by including a low power beacon in the product packaging. The beacon is activated when the product is unboxed. Once activated, the beacon transmits a signal that includes an identifier for the product.

The signal is received by nearby devices, such as smartphones, tablets, smart speakers, smart TVs, Internet of Things (IoT) devices, etc. The identifier is utilized by the devices to retrieve relevant customized multimedia information about the product, such as instruction manuals, setup or assembly instructions, etc. The retrieved relevant information is delivered in a contextually appropriate format on a suitable device to help the user with product setup or assembly, product registration, product operation, etc.

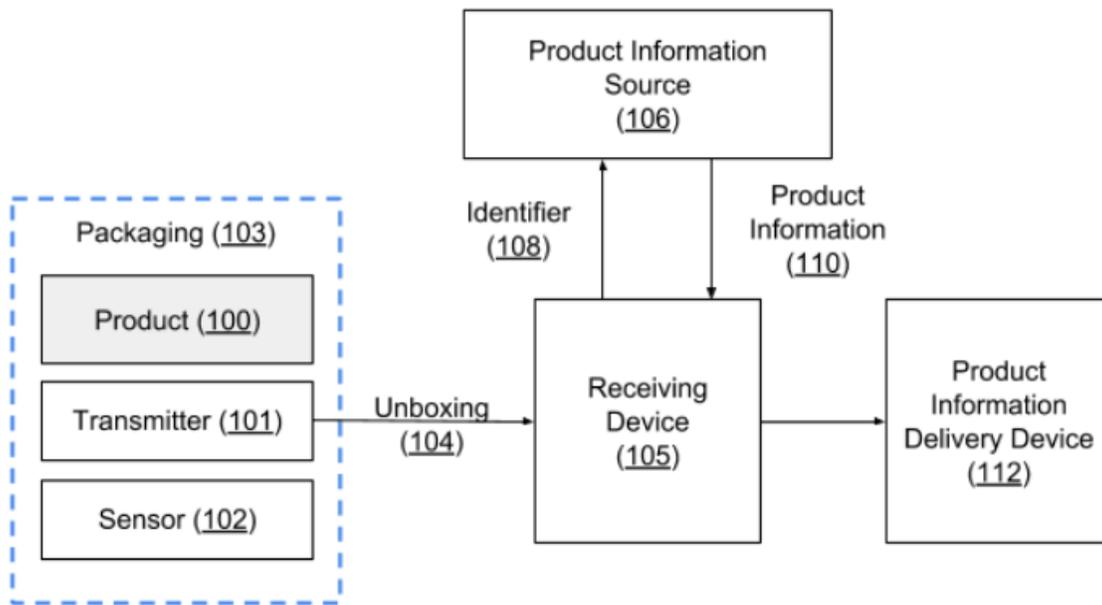


Fig. 1: Customized multimedia product information delivery upon unboxing

Fig. 1 shows an example process flow of the techniques of this disclosure. A product (100) is shipped to a user in packaging (103). Along with the product the packaging includes a low power transmitter (101), e.g., a Bluetooth beacon, that is dormant as long as the packaging is unopened. The packaging also includes a sensor (102), e.g., an environmental sensor, a battery pull-tab, a reed switch and a small magnet, a motion sensor, etc.

When the sensor indicates that the product has been unboxed (104), the transmitter is activated to transmit a signal with an identifier (108) associated with the product. The signal may be received by a nearby device (105), such as a smartphone, tablet, smart speaker, smart TV, Internet of Things (IoT) device, etc., located within a few meters of the transmitter. The received product identifier can be utilized by the receiving device to look up product information (110) about the product from an appropriate information source (106). For instance, such information may be retrieved from the Internet, a cloud service, a manufacturer database, etc. Alternatively,

the information source may be the receiving device itself in case the needed information is available locally within the device.

Relevant product information is provided by the information source based on the association between the identifier and the product. The association may be available within the same information source that contains product information. Alternatively, the association may be retrieved from a different information source. Relevant product information may include setup or assembly instructions, product registration information, operation manuals, product-related apps, etc. Upon retrieving relevant product information, the information is presented by the device (105) to the user in a multimedia format using appropriate delivery device or devices (112). For instance, audio setup instructions may be delivered via a smart speaker while video content may be shown via a smart TV. In some cases, the product information delivery device may be the same as the receiving device. For example, the product identifier may be received by a smartphone and utilized to show relevant product information within a smartphone app.

For example, unboxing an unassembled furniture item causes transmission of a relevant identifier that is picked up by a nearby smart speaker. The identifier is then used to retrieve product assembly instructions from the Internet to provide the user with step-by-step voice guidance to assemble the furniture. In another example, opening the case of a Blu-ray movie disc causes transmission of a relevant identifier that is used by the user's smartphone to look up information about the movie and add it to the user's movie playlist.

Upon user consent, the information delivery may be customized based on the user's context and personalized to the user. For instance, with the consent of the user, the product information can be customized to be delivered in the local language and personalized based on

known information about the user, such as currently owned products, registration information, etc.

The techniques of the disclosure can be extended to handle a single shipment of overpacked products, i.e., a single shipment that contains several small products that need to be combined to create a larger product. For instance, a shipment to construct a kitchen may include several individual products, such as appliances, faucets, cabinets, etc. Each of the smaller products can include its own transmitter. The transmitters of all products within the larger shipment are used in concert to deliver information that assists the user in setting up or assembling the larger product. A further extension of the disclosure enables specification of various conditions that are to be met in order to unlock and access the product and product-relevant content. For instance, a product or product information may be unlocked only when the product is unboxed at a specific location or near another particular product.

With user consent, the techniques of this disclosure can be extended to collect product unboxing information that can help link purchases with advertising. For instance, if permitted by the user, information about a corresponding unboxing event is relayed by the receiving device to an advertising service upon receiving a product identifier from the transmitter. The advertising service can link the product purchase to the user's previous interaction with advertisements. Such linkage can help optimize advertising spending. Similarly, with user consent, information about the product unboxing event may be relayed by the receiving device to a service that tracks and manages product inventory.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein may enable collection of user information (e.g., information about a user's social network, social

actions or activities, profession, a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

This techniques of this disclosure utilize a small low power transmitter within product packaging to transmit a signal upon unboxing the product. The signal includes a product identifier. Upon receiving the identifier, appropriate product information is retrieved by a nearby device to trigger relevant actions, including providing the user with customized multimedia guidance for setting up and using the product. The techniques of this disclosure can be extended to a larger product that is composed of a set of smaller products. Upon user consent, the techniques of this disclosure can be further extended to link purchases with advertising and to track product inventory.