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Personalized and contextual product related assistance

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Personalized and contextual product related assistance

ABSTRACT

Installation and troubleshooting of products such as appliances, IoT devices, computing devices, etc. can be difficult and cumbersome. This disclosure describes techniques to provide product installation, troubleshooting and support guidance to users. The techniques can be implemented as part of a virtual assistant. With user permission and express consent, the virtual assistant obtains information regarding products that a user owns or is interested in, e.g., based on online purchases, email, user search queries, etc. The virtual assistant extract information from available sources, e.g., product manuals, and transforms such information into a user-friendly format, e.g., step-by-step guidance. Upon receiving a user query about a product, the virtual assistant provides responses suited to the user context, e.g., set up of a new device, troubleshooting a device, providing maintenance reminders, etc.

KEYWORDS

- IoT device
- Home appliance
- Virtual assistant
- Product setup
- Product maintenance
- Instruction manual
- Troubleshooting
- Contextual assistance

BACKGROUND

Setting up, operating, troubleshooting, and maintaining devices can be challenging, and frustrating for users. Such operations can also be time consuming and require users to refer to product instruction manuals to identify relevant content, e.g., setup or troubleshooting instructions for a product. While many devices are shipped with product manuals or other documents that include maintenance instructions, these documents may be forgotten or lost after installation of the device.

DESCRIPTION

This disclosure describes techniques for a virtual assistant to offer help to users to install and/or maintain products, e.g., appliances, computing devices, Internet-of-Things devices, e.g., smart lighting, door locks, etc. A virtual assistant uses available product information, e.g., from product manuals, and provides guidance to help users troubleshoot, set up, operate, and maintain the corresponding products. For example, the virtual assistant can extract, parse, and deliver information from product manuals or other sources and use such information to provide responses to user queries.

With user permission and express consent, the virtual assistant determines products that are of interest to the user, e.g., by referring to user's purchases, products that the user has searched for, etc. Users can also provide input to the virtual assistant, e.g., indicating that they possess a certain product, or querying for assistance with a certain product.

For example, the virtual assistant can identify the user's purchases when users provide permission for the virtual assistant to access emails regarding recent purchases. In this example, if the email data includes an order or delivery confirmation that indicates a product identifier (e.g., a dishwasher manufacturer and model name) and a delivery date, the virtual assistant can

automatically provide setup instructions to the user when the product arrives, e.g., on a user's mobile device.

In another example, with user permission, the virtual assistant can identify user interest in a particular product based on the user's search terms or specific query submitted to the virtual assistant. In this example, when the virtual assistant detects that the user has conducted searches (or submitted a query) regarding a specific dishwasher model, the virtual assistant provides relevant specifications such as energy rating and efficiency information from the product manual. For example, the virtual assistant can maintain a database of product information that is updated with new information as products launch, and with setup/ troubleshooting instructions as these become available. Further, the virtual assistant can also provide other product-related information such as product ratings and reviews.
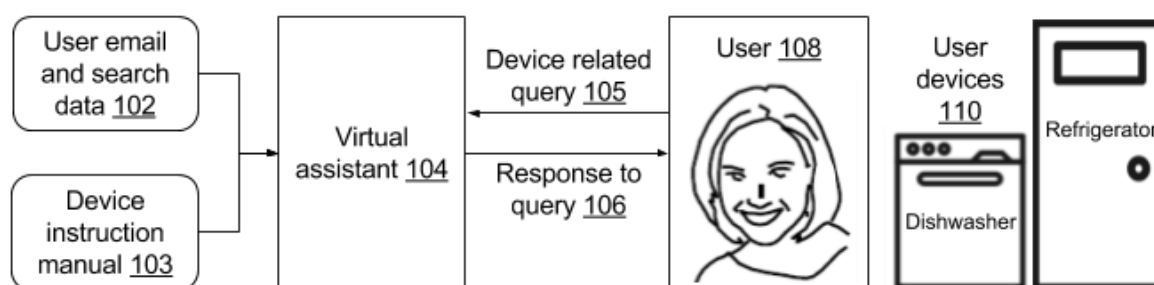

Fig. 1 Obtaining product related assistance

Fig. 1 illustrates a virtual assistant (104) that is configured to answer a user query (108) from a user (105). The user can submit the query explicitly, or the virtual assistant can offer help proactively, based on context. In the example shown in Fig. 1, the user query is related to user devices (110), e.g., "my dishwasher is not drying dishes." To determine the response, the virtual assistant identifies the user's dishwasher model, e.g., based on permitted user data such as email and search data (102), and provides a response (106), e.g., troubleshooting instructions

determined from a manual and other information sources for the device (103). While this example illustrates a response to a query, the virtual assistant can also proactively provide help, e.g., reminders of upcoming maintenance dates, suggestions for proactive maintenance, etc.

Examples of use

- Context specific assistance: A user Alice finds that her dishwasher isn't drying the dishes washed and seeks help from the virtual assistant. In response to a query from Alice, e.g., "Why is my dishwasher not drying the dishes?" the virtual assistant first determines the dishwasher model, if not already known, e.g., based on data for which the user Alice has provided permission. The virtual assistant then provides one or more answers or troubleshooting steps, e.g., determined based on instruction manual for the dishwasher model. Parsing the instruction manual for relevant content can be performed prior to the user query, e.g., the virtual assistant can include stored query responses. Further, with user permission, the virtual assistant can identify devices and products owned by the user, e.g., from purchase data, and provide assistance based on such identification.

- Device setup/installation assistance: A user Brian seeks help from the virtual assistant to install newly acquired WiFi lights, e.g., with a query "How do I install my WiFi lights?" The assistant provides concise step-by-step guidance in response. For example, the virtual assistant can use various techniques to parse an instruction manual and transform information from the manual, e.g., text-heavy instructions, into the step-by-step guidance.

- Proactive/Preventive maintenance: A user Charlie tasks the virtual assistant with reminding him to perform periodic maintenance on a dishwasher that he owns. The assistant determines the recommended maintenance schedule from the dishwasher manual and provides reminders accordingly. For example, in response to a user query "I'd like to receive a notification that

it's time to change the filter in my dishwasher," the virtual assistant provides a reminder to the user, e.g., "It's time to clean your dishwasher filter. Shall I add it to your weekend to-do list?" Further, the virtual assistant can also provide a recommendation to order the appropriate filter, e.g., by including a link to an online store that sells the filter. The virtual assistant is interactive, e.g., in response to a user query "Show me a video on how to change it," the virtual assistant automatically identifies and plays the relevant instructional video. In some contexts, the virtual assistant can also suggest parts required to complete the maintenance or recommend service providers to perform maintenance tasks.

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 disclosure describes techniques to provide product installation, troubleshooting and support guidance to users. The techniques can be implemented as part of a virtual assistant. With user permission and express consent, the virtual assistant obtains information regarding products that a user owns or is interested in, e.g., based on online purchases, email, user search queries,

etc. The virtual assistant extract information from available sources, e.g., product manuals, and transforms such information into a user-friendly format, e.g., step-by-step guidance. Upon receiving a user query about a product, the virtual assistant provides responses suited to the user context, e.g., set up of a new device, troubleshooting a device, providing maintenance reminders, etc.