Technical Disclosure Commons

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Advertising based on usage characterization of household appliances

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ABSTRACT

This disclosure describes usage characterization of an appliance (or service) within a household and identification of key decision makers associated with the appliance. Per techniques of this disclosure, with user permission and express consent, use of appliances and services within a household is linked to respective users from within the household. Use of an appliance is identified with the use of voice recognition techniques to analyze voice commands issued via a virtual assistant to respective appliances by different users in the household. An edge connects an appliance to one or more users and indicates usage of the appliance that meets a threshold use by a user. The weight of the edge is indicative of an extent of usage. The weighted graph enables identification of decision makers for different products and services. With user permission, the graph can be utilized to direct advertisements for particular products towards key decision makers.

KEYWORDS

- Smart appliance
- Household appliance
- Speaker identification
- Virtual assistant
- Ad targeting
- Online advertising

BACKGROUND

Advertisers benefit from being able to direct their advertising campaigns to suitable users. When users permit, marketers, agencies, and brands utilize factors such as search history,

browsing history, etc. to identify a suitable audience for their advertisements. For example, a viewer of a video that includes content on laundry techniques can be served with an ad promoting a particular detergent.

DESCRIPTION

This disclosure describes usage characterization of an appliance (or service) and identification of key decision makers associated with the appliance. Per techniques of this disclosure, with user permission and express consent, use of appliances and services within a household is linked to respective users from within the household. Use of an appliance is identified with the use of voice recognition techniques to analyze voice commands issued via a virtual assistant to respective appliances by different users in the household.
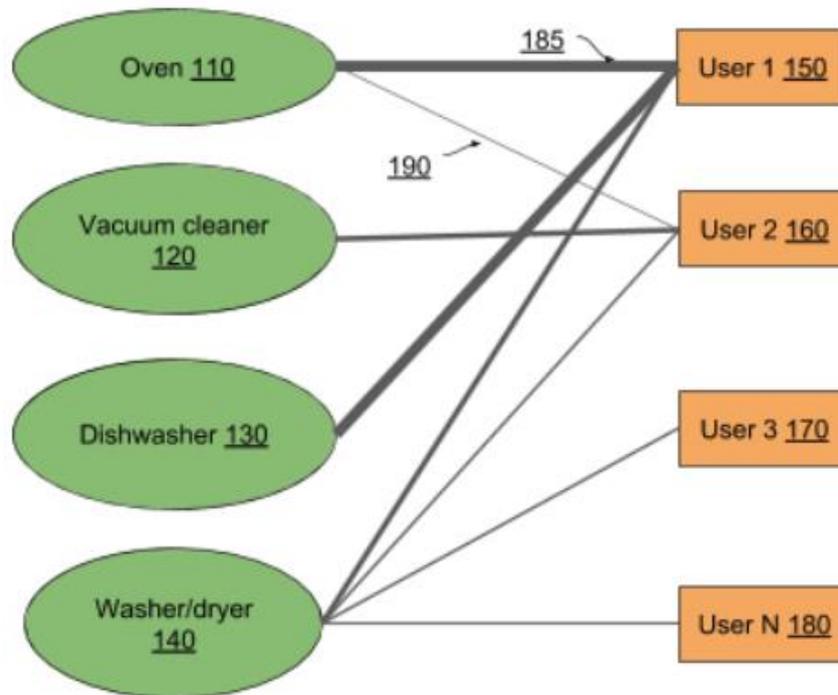

Fig. 1: Nodes representing users and appliances are connected by edges indicative of frequency of use

Fig. 1 illustrates a weighted graph with edges connecting appliances and household members, per techniques of this disclosure. The graph is generated only for those users and households that have permitted use of voice recognition techniques for this purpose. The techniques are not implemented if one or more users in a household decline permission.

In the illustrative example of Fig. 1, two types of nodes are shown in the graph. A first type of node (green) represents appliances, e.g., an oven (110), a vacuum cleaner (120), a dishwasher (130), and a washer/dryer (140), utilized in the household and a second type of node (orange) represents household members (150, 160, 170, and 180). Use of an appliance by one or more of the users is detected via voice recognition, e.g., on voice commands issued via a virtual assistant to the appliance.

An edge that connects an appliance to one or more users represents usage of the appliance by a user. The weight of the edge is indicative of an extent of usage. Non-usage or use of an appliance that fails to meet a threshold by a user is indicated by the absence of an edge connecting the particular appliance and the user. In this example, a heavily weighted edge (185) that connects the nodes representing user 1 (150) and the oven (110) indicates frequent use of the oven by user 1. The lighter edge (190) that connects the nodes representing the oven and user 2 is indicative of less frequent use of the oven by user 2. Absence of edges connecting the dishwasher node (130) and nodes representing user 2 (160), user 3 (170), and user 4 (180) is indicative of non-use or infrequent use of the dishwasher by those users.

When users permit, the weighted graph enables identification of decision makers for different products and services within a household. Such information can be used to direct ads for particular products towards the key decision makers within the household. For example, based on the weighted graph of Fig. 1, advertising for products/services related to dishwashers

can be directed to user 1, for products/services related to vacuum cleaners could be effectively directed to user 2, and so on. The frequency of usage of an appliance by a household member can be computed locally.

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 usage characterization of an appliance (or service) and identification of key decision makers associated with the appliance. Per techniques of this disclosure, with user permission and express consent, use of appliances and services within a household is linked to respective users from within the household. Use of an appliance is identified with the use of voice recognition techniques to analyze voice commands issued via a virtual assistant to respective appliances by different users in the household. An edge connects an appliance to one or more users and indicates usage of the appliance that meets a threshold

use by a user. The weight of the edge is indicative of an extent of usage. The weighted graph enables identification of decision makers for different products and services. With user permission, the graph can be utilized to direct advertisements for particular products towards key decision makers.