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Location specific assistance based on geofencing

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Location specific assistance based on geofencing

ABSTRACT

Digital assistant and bots serve users by providing suitable information and services. However, users may sometimes require specific information or services, e.g., that are offered exclusively by a third party, that current digital personal assistants cannot provide. For example, specific providers can offer services at or near geographic locations.

Techniques described herein permit a digital assistant to provide users such specialized services by integration with third party providers. Third party providers for a particular location are selected, e.g., via an auction to provide assistance within a geofence, or other mechanisms. Such auctions can also be conducted in real-time in response to user queries. The digital personal assistant platform then offloads suitable user queries within the geofence to the selected third-party provider. The third-party provider responds to the user query within the digital assistant platform.

KEYWORDS

- geofence
- digital assistant
- personal assistant
- Location-based auction

BACKGROUND

Digital assistants that answer user queries (e.g., related to weather, traffic, sports, etc.) and assist with various tasks (e.g., setting reminders, managing appointments, completing chores, etc.) are increasingly common. While digital assistants provide valuable assistance in many contexts, there are specialized situations where a digital assistant platform cannot assist users,
e.g., if the digital assistant platform doesn’t offer such functionality, due to lack of access to relevant data, etc. For example, a digital assistant may not be able to offer specialized assistance to users if the requested service can only be fulfilled by a third party that has the geographical and/or functional context. A user may query a digital assistant to provide access to services in different locations such as restaurants, hotels, stores, car rentals, a live event venue, etc. where the digital assistant does not have the required information. Further, the digital assistant may not have the functionality to offer services from such providers, e.g., to reserve a table at a restaurant, buy movie tickets, etc.

DESCRIPTION

The techniques described enable digital assistant platforms to work with third party applications to fulfill user requests for specialized information and services offered by such third parties. Specifically, third parties such as retailers are selected (e.g., via an auction or other mechanism) as service providers within a geofence to provide specialized assistance through the digital assistant platform. When users permit use of location data, the digital assistant automatically detects when a user’s mobile device is within a geofence. Upon such detection, if users permit, user queries related to services provided by a service provider are automatically transferred to the service provider.

The service provider is responsible to provide a response to the user query. Depending on the implementation, involvement of the third party can be disclosed to the user, or the digital assistant platform can seamlessly relay answers from the service provider to the user.

Further, selection of service providers within a geofence can be achieved via a real-time auction. For example, a given geofence can have more than one service provider. Upon receipt of a user query, the digital assistant platform conducts a real-time auction in which the service
providers participate. The winner of the auction is offered the opportunity to provide assistance via the digital assistant platform in response to the user query.

Fig. 1: Mobile device outside a geofence (a) and within a geofence (b)

Fig. 1 (a) illustrates a mobile device (106) with a digital assistant (108). The mobile device is outside a geofence (102) that corresponds a hotel ABC (104). When the mobile device is outside the geofence, the digital assistant responds to user queries. When the mobile device is detected to be inside the geofence, as shown in Fig. 1(b), the digital assistant directs user queries
to a selected provider, e.g., “Hotel ABC bot” (110) that provides answers and services. Detection of location is performed only upon specific user permission. For users that do not permit access to location information, the digital assistant continues to answer user queries even when the mobile device is inside the geofence. In this case, the specialized assistant is not utilized and is not provided access to user queries or other user data.

Examples

Restaurant: A user Alice sees a geofenced digital assistant (“Restaurant ABC assistant”) provided by restaurant ABC on her phone upon entering the restaurant. Alice obtains the menu and current wait time information from Restaurant ABC assistant and orders her meal. She takes a stroll around the restaurant and is automatically notified by Restaurant ABC assistant once the meal is ready. If Alice provides permission, the Restaurant ABC assistant requests and obtains payment approval for the meal from a digital wallet for Alice.

Hotel: A user Bob is notified of a “Hotel ABC assistant” on his phone when the phone is detected as within a geofence that includes Hotel ABC. The Hotel ABC assistant handles Bob’s request to check into the hotel, and obtains Bob’s authorization to use his digital wallet for payment (and other) details to complete the check-in. The digital assistant platform integrates with Hotel ABC assistant while Bob is at the hotel to handle various requests, e.g. for housekeeping services, room service, etc.

Grocery store: A user Charlie is greeted by a “ABC grocery assistant” when he is within a geofence for the ABC Grocery Store. The ABC grocery assistant answers user queries (e.g., “where is flour?”) via the digital assistant platform, e.g., by providing directions to the corresponding store aisle, and details of available products and prices. The ABC grocery
assistant also enables Charlie to add selected products to a virtual cart and request that the selected products be delivered at a home address.

**Car Rentals:** As a user Dinesh approaches a car rental office, a specialized bot offered by the rental company is automatically enabled. Dinesh queries the digital assistant application on his mobile device (e.g., phone, smartwatch, etc.) and requests that the check-in process to rent a car be completed. The digital assistant platform interacts with the specialized bot to complete the check-in process for Dinesh.

**Health care:** If users permit use of user location at or near health care facilities, the digital assistant platform can interface with a specialized assistant application from the health care provider (e.g., a hospital) to answer user queries, book doctor’s appointments, etc. The user is saved the time to wait in queues or interact with staff at the healthcare facility. User data is not accessible to the digital assistant platform or the specialized assistant application unless the user provides permission to access such data.

**Live events:** A popular band is performing concerts in different cities, e.g., in a public park in each city. The concert organizer leases the geofence for each of the parks during the concert hours. The concert organizers enable attendees to purchase DVDs and other items via the digital assistant platform. The digital assistant platform also provides attendees details about the band and the event, e.g., a map of the venue, location of food stalls, lost and found, etc. by interfacing with programs from the concert organizer.

**Universities:** Universities and schools have thousands of students that shift from one classroom or building to another frequently. Universities can provide a better student experience by offering a bot to students within the campus location. When a student asks a digital assistant about the
location of a class, the digital assistant interacts with the bot and provides the building and room details.

In the above examples, the third parties (e.g., restaurant, hotel, university, etc.) are responsible to integrate their respective bot or assistant applications with the digital assistant platform to provide the specialized services, e.g., via an application programming interface (API). If users permit access to user information related to a location (e.g., a student ID for a university), the digital assistant platform can enable additional premium services that are personalized for the user. For example, the digital assistant platform can enable a student to access their class schedule and various related academic services.

In situations in which certain implementations discussed herein may collect or use personal information about users (e.g., user data, information about a user’s social network, user's location and time at the location, user's biometric information, user's activities and demographic information), users are provided with one or more opportunities to control whether information is collected, whether the personal information is stored, whether the personal information is used, and how the information is collected about the user, stored and used. That is, the techniques discussed herein collect, store and/or use user personal information specifically upon receiving explicit authorization from the relevant users to do so.

For example, a user is provided with control over whether programs or features collect user information about that particular user or other users relevant to the program or feature. Each user for which personal information is to be collected is presented with one or more options to allow control over the information collection relevant to that user, to provide permission or authorization as to whether the information is collected and as to which portions of the information are to be collected. For example, users can be provided with one or more such
control options over a communication network. 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. As one example, a user’s identity may be treated so that no personally identifiable information can be determined. As another example, a user’s geographic location may be generalized to a larger region so that the user's particular location cannot be determined.

CONCLUSION

Techniques described herein permit a digital assistant to provide users such specialized services by integration with third party providers. Third party providers for a particular location are selected, e.g., via an auction to provide assistance within a geofence, or other mechanisms. Such auctions can also be conducted in real-time in response to user queries. The digital personal assistant platform then offloads suitable user queries within the geofence to the selected third-party provider. The third-party provider responds to the user query within the digital assistant platform. The third-party provider can be identified as providing assistance, or the digital assistant can relay information from the third-party provider. When users permit access to user identity information, assistance features from third party providers can be personalized.