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Dynamically Updated Location-Based User Groups for Context-Specific Communication

ABSTRACT

Groups on social networking and messaging platforms enable users to communicate with others in a compartmentalized and targeted manner. However, curating such groups requires manual effort and does not support scenarios in which users wish to communicate with context-specific groups that are dynamic and transient. This disclosure describes techniques that enable dynamically creation and update of user groups based on user location. A messaging backend can enable users to communicate with others in the dynamic location-based groups connected to specific locations. The techniques enable seamless formation and update of context-specific groups without manual effort.

KEYWORDS

- Contact group
- Social networking
- Social media
- Location-based services
- Location-based social network
- Geofencing
- Dynamic group
- Transient group
- Contextual user grouping
- Group chat

BACKGROUND

Users of social networking websites and applications have the ability to organize their contacts on such platforms into various types of groups. For example, a user may organize their connections on a social networking platform based on social or professional relationships, such as family, friends, work colleagues, classmates, neighbors, etc. Organizing connections into groups enables users to send or receive information in a compartmentalized and targeted manner. For instance, a user can choose to share photos of a family gathering only with those in the "family" group. Similarly, when at work, a user can choose to only receive notifications about posts from those in the "work colleagues" groups.

Manual effort from the user to create and curate groups is necessary to use the grouping functionality of social networking platforms. As a result, the groups may remain mostly static, with changes happening only periodically, such as when initiating or removing a connection or changing the group assignment for a contact because of circumstances such as job changes. Since reassignments and removals from groups tend to be rare, the assignment of a contact to a specific group is usually permanent.

In some cases, users may wish to communicate with people who form a group that is based on a specific context. For example, a user that is attending an event, such as a concert, rally, etc. may find it useful to communicate regarding venue information with others attending the same event, but only just before, during, and just after the event. Some social networking services or public groups are designed specifically for particular purposes and contexts, such as neighborhood interaction, job-related functions, etc. However, such services or groups require that users explicitly join and leave. As a result, users who may wish to engage with such services or groups only during limited periods or for specific tasks can experience information overload

from irrelevant interactions and need to join and leave such services or groups on a constant basis.

Moreover, services and groups designed to cater to specific communication needs do not support many scenarios in which users may desire context-specific groups because the dynamic and transient nature of the context makes it difficult to create and maintain such groups via these services and platforms. For example, groups formed based on being at a concert or a park at the same time can contain individuals who are part of such a group only for a relatively short duration and are otherwise unassociated with the event, place, or most other co-located individuals.

DESCRIPTION

This disclosure describes techniques that enable dynamic creation of user groups based on user location, obtained with user permission. For instance, such groups can include individuals who are co-present at a given location, such as a store, a concert hall, a stadium, a park, etc., or users that are within a specified radius of a specific user's current location.

Based on aggregated user location information, groups connected to specific locations can be formed dynamically and subsequently updated in real time when users move. For example, users who enter the vicinity of a specific location, such as a park, can be sent a notification on their devices asking them if they wish to join a group of people based on co-presence at the location, with those who agree being added to the dynamic group associated with that location. Additionally, users can choose to look up and join any location-based dynamic groups that are available around the user's current location and/or at a given location.

A messaging backend connected to a frontend communication application (e.g., on a user device) can enable users to communicate with others in the dynamic location-based groups that

are connected to specific locations. Users can leverage such communication for a variety of context-relevant purposes and tasks. For example, a user can chat and share photos or videos with others attending the same music festival, share information regarding event-related topics such as performance schedule, delays, food and drink options at concession stalls, wait times at restrooms, tips for enhancing the attendance experience, etc.

Similarly, a user who needs help finding a specific item in a grocery store can choose to join the group of users co-present at the store and seek help in locating the item from those who have opted to join the group. Any of the group members, which can include customer service representatives of the store, can help the user locate the item within the store or suggest alternatives in case the item is unavailable at that store. As another example, a user whose pet has wandered away at a theme park can choose to broadcast a message (optionally with a photo or other information about the pet) to those who have opted in to joining a location-based group within a specific radius (e.g., 500 yards) from her current location to ask if anyone has seen the pet. A group member who spots the pet can then let everyone know so that the pet can be reunited with the parent, and everyone can stop looking for the pet.
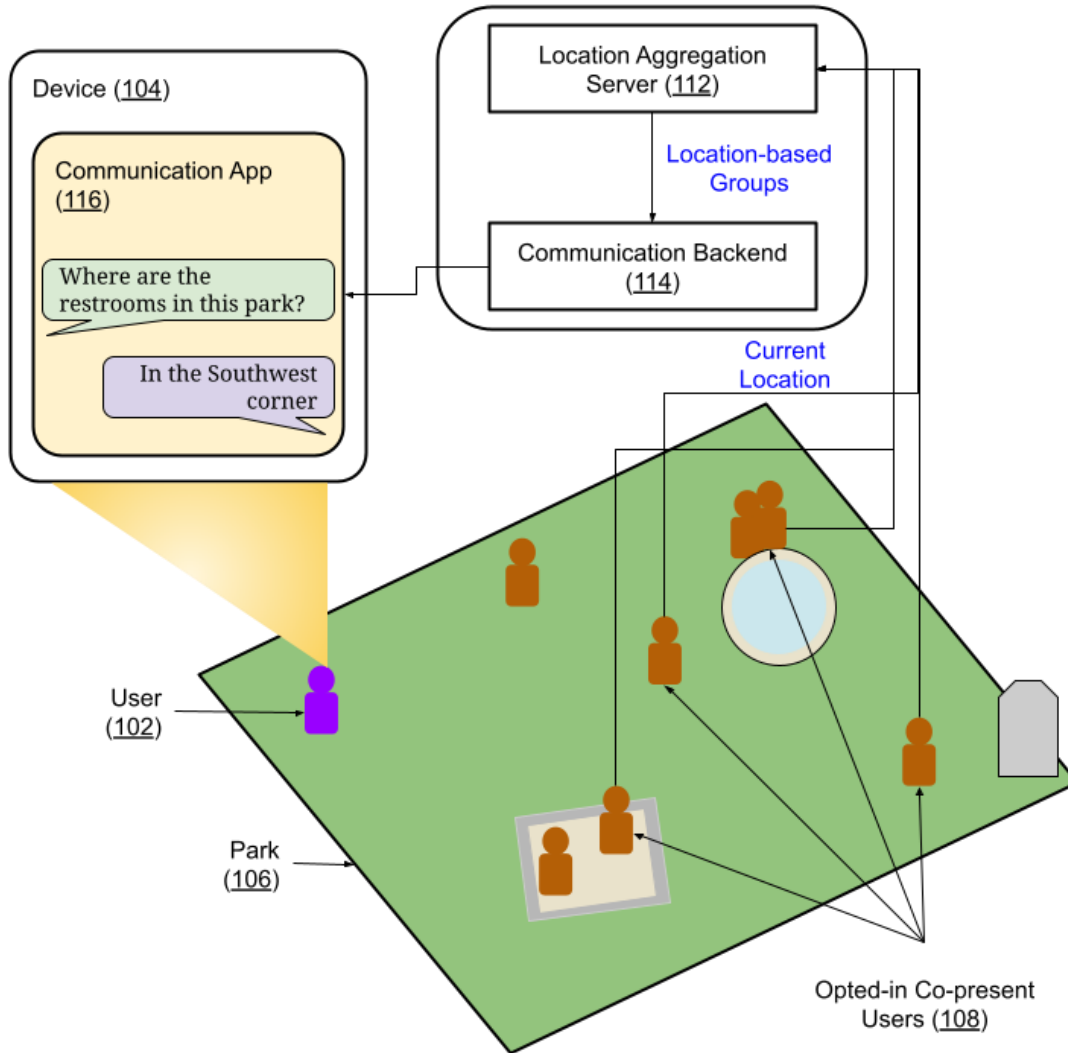
Fig. 1: Communicating with user groups formed dynamically based on location

Fig. 1 shows an example operational implementation of the techniques described in this disclosure. A user (102) is visiting an unfamiliar park (106) while carrying a device (104). Locations of other users co-present at the park who have opted in to share their locations (108) are aggregated at a server (112) employed for dynamically forming and updating user groups based on location. With the permission of the users, a communication backend can leverage the dynamic location-based groups to enable the user to communicate with the group of opted-in users co-present at the park via a communication app (116) on the device. As illustrated in Fig. 1,

the user can use the communication app to inquire about the location of the restrooms in the park to which any of those currently in the dynamic group for the park can respond.

The described techniques can also utilize location verification. For example, a local wireless connection via Bluetooth or WiFi between user devices can be established. The users associated with the devices, may be identified as being physically proximate and therefore eligible for location-based user groups, while they may otherwise have disjoint location histories (indicating that the users likely do not know each other).

Apart from being used via a standalone application as described above, the techniques can be implemented within any server-based social networking and/or messaging application, service, or platform. In addition, the functionality can be made available via an application programming interface (API). The appropriate radius around a user and the boundaries around a location that are used as the geofencing bounds for the dynamic location-based groups can be set by the developers and/or specified by the users and/or determined dynamically at runtime. Users can choose to opt in and out of being included within any dynamic location-based groups at any time.

Implementation of the techniques described in this disclosure can enable seamless formation and update of user groups relevant for the context of a given location at any given time. Users can leverage such groups for context-relevant communication within social networking and messaging applications, thus enhancing the user experience (UX) of these services and platforms.

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 messaging/social network

applications, 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

Groups on social networking and messaging platforms enable users to communicate with others in a compartmentalized and targeted manner. However, curating such groups requires manual effort and does not support scenarios in which users wish to communicate with context-specific groups that are dynamic and transient. This disclosure describes techniques that enable dynamically creation and update of user groups based on user location. A messaging backend can enable users to communicate with others in the dynamic location-based groups connected to specific locations. The techniques enable seamless formation and update of context-specific groups without manual effort.