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May 06, 2019

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Recommended Citation

Shepherd, Garnet; Black, David; and Margolin, Ben, "System for passive natural telepresence", Technical Disclosure Commons, (May 06, 2019)

https://www.tdcommons.org/dpubs_series/2174



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System for passive natural telepresence

ABSTRACT

The disclosure describes techniques for passive natural telepresence that allow a user working from home or other remote location to be passively present at work. Existing devices, e.g., work computers, are configured to allow workers in different locations to interact as if they were present at the same physical location. The techniques facilitate casual unplanned interaction between users in different locations. For example, with user permission, a remote user is provided a feed of ambient office conversations and can join a conversation without scheduling a conference call between colleagues. Devices in the different locations, e.g., an office location, a home location or other remote location are accessed only upon specific permission of the user.

KEYWORDS

- telepresence
- remote interaction
- distributed team
- casual interaction
- video conferencing
- status indication

BACKGROUND

In many contexts, users, e.g., office workers, work in teams where some team members are remote, e.g., at a different office, working from home, etc. Unless a user travels frequently to meet their co-workers in person, it is difficult to maintain casual interaction with remote team members. These casual in person interactions often occur in common areas, where people tend to pass by or congregate, offering a natural incentive for people to interact. For remote users there

are no easy ways to stay engaged with the office environment, while those in the office also need to utilize explicitly scheduled video conferences to meet with remote co-workers. Video conferencing tools are usually not used for casual interaction.

DESCRIPTION

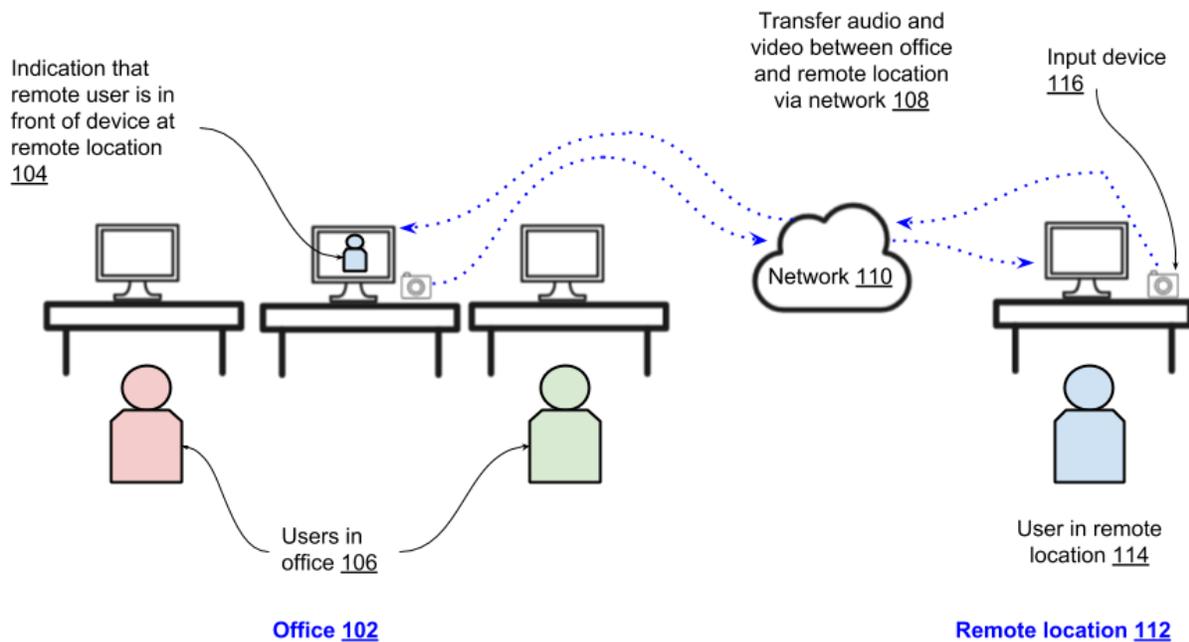


Fig. 1: System for passive natural telepresence

Fig.1 illustrates an example of techniques of this disclosure that enable users in different locations to interact naturally with other users. The techniques are implemented with the use of available devices (116) e.g., a desktop or laptop computer with a camera. For a remote user, e.g., a user working from home (114), their work devices at the desk, e.g., a work computer, is utilized to detect that they are not currently present at work. For example, this may be detected based on user-permitted factors such as user login status, detecting that the user is not present at their work computer, the work computer is not being used, etc.

The user is at a remote location (112) is presented with an option to be recognized as available. When the presence of a user is detected at the remote location, other users, e.g., work colleagues (106) are provided a status indication (104) e.g., at the desk of the remote user. For example, the remote user's status is indicated in physical form (e.g., a three-dimensional rendering of the user) on a display of the work computer at the remote user's work desk. For example, ambient video and/or audio from the remote user can be provided, if permitted by the remote user.

With permission of users that are in the office, ambient audio of the office location is provided to the remote user. This enables the remote user to receive office conversations at the remote location (108) and allows for a more natural engagement between users. For example, if work colleagues start a discussion, the remote user can participate by activating a microphone and camera locally, and starting a video feed over a network connection (110) to their office computer, thus establishing a temporary video conference that their work neighbors can participate in.

With user permission, facial recognition techniques can be used to identify when a work colleague approaches the office desk of the remote user. If the remote user is currently working, a notification of the colleague approaching their desk is provided to the remote user. With user permission, a temporary video conference is started between the office and remote location, allowing interaction. Further, colleagues that walk close to the remote user's computer can be detected and a notification can be sent to the remote user. The remote user can get the attention of these colleagues as if they were present at the office desk.

Providing ambient audio or video and enabling rich presence indicators provides for more natural interaction between remote users and those at a work location. Sensing opportunities for

interaction via audio or video detection and automatically starting video conferences provides seamless interaction eliminating the need for users to perform actions to initiate such interaction. The techniques can be implemented as enhancements of current video conferencing tools. Leveraging the work computer and work location of a remote user while they are away enables more natural interaction.

The techniques described herein provide natural telepresence and communication between remote users. The described techniques can be implemented as part of a software application e.g., video conferencing application, etc. and on devices such as computers, smartphones, tablets, virtual reality devices, wearable devices, etc. The described techniques are implemented with specific user permission. If the user denies or restrict permission to access to input devices, only such data are accessed as permitted by the user. Users are provided with options to disable passive natural telepresence.

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

The disclosure describes techniques for passive natural telepresence that allow a user working from home or other remote location to be passively present at work. Existing devices, e.g., work computers, are configured to allow workers in different locations to interact as if they were present at the same physical location. The techniques facilitate casual unplanned interaction between users in different locations. For example, with user permission, a remote user is provided a feed of ambient office conversations and can join a conversation without scheduling a conference call between colleagues. Devices in the different locations, e.g., an office location, a home location or other remote location are accessed only upon specific permission of the user.