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Automatic reply to incoming chat messages based on context

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ABSTRACT

A mobile device user may temporarily be unable to respond to an incoming call or message, e.g., due to the user being in a meeting, or other contexts where the user cannot operate the device. This disclosure describes techniques for a mobile device or virtual assistant to automatically reply to incoming messages or calls based on the user's context, when the user is an occupied state. The techniques are implemented with specific user permission.

KEYWORDS

- Messaging
- Chat
- Virtual assistant
- Automatic response
- User context
- Do-not-disturb

BACKGROUND

Messaging is a popular user activity on mobile devices. However, unlike other digital services like email, there's no available technique in a messaging application for a user to politely say "I'm busy" or for the device to indicate that the user may not be able to respond at the current time. A smartphone may be set in a do-not-disturb mode, thereby preventing undesired or disruptive buzzing, but those attempting to communicate with the user do not know that the user is occupied. Additionally, users do not want to miss important communications, and hence constantly check their phones. Much of such communication comprises simple and quick

responses to keep acquaintances up-to-date, but still involves pulling the phone out of the user's

pocket or purse, with nearly the same effort as writing longer messages.

DESCRIPTION
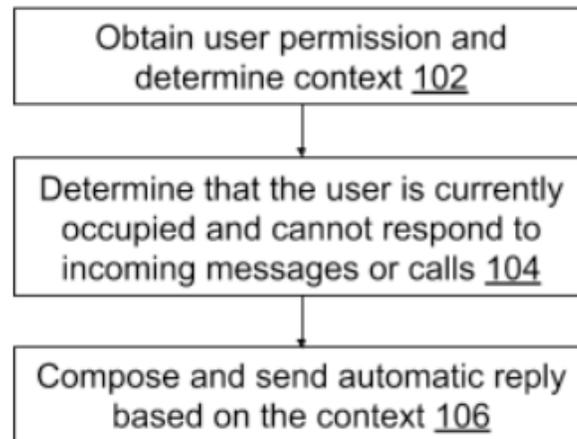
Fig. 1: Automatic reply based on context

Fig. 1 illustrates automatic reply based on user context, per techniques of this disclosure.

With user permission, a virtual assistant or other application on a mobile device determines user

context (102) based, e.g., on a mix of user permitted factors. The factors can be determined, e.g.,

from sensors, from information available to the virtual assistant, etc. For example, if the user is

headed to a meeting, the virtual assistant can determine if the user is on time or running late,

based, e.g., on the current time, current location, and the user's calendar, if permitted by the user.

With user permission, the virtual assistant or mobile device determines that the user is

currently occupied and/or cannot respond to incoming messages or calls (104). The

determination that the user is occupied can be made, e.g., based on sensor data, based on

information available to the virtual assistant, etc. For example, if the user has set their mobile

device on do-not-disturb mode, the virtual assistant detects that the user is occupied. As another

example, if the user's location coordinates indicate that the user is in a conference room, the virtual assistant detects that the user is occupied in a meeting.

With user permission, the virtual assistant or mobile device composes and sends an automatic reply based on the context (106). The automatic response is sent via the same messaging application (e.g., an SMS application, an IP-based messaging application, etc.) as that of the incoming message.
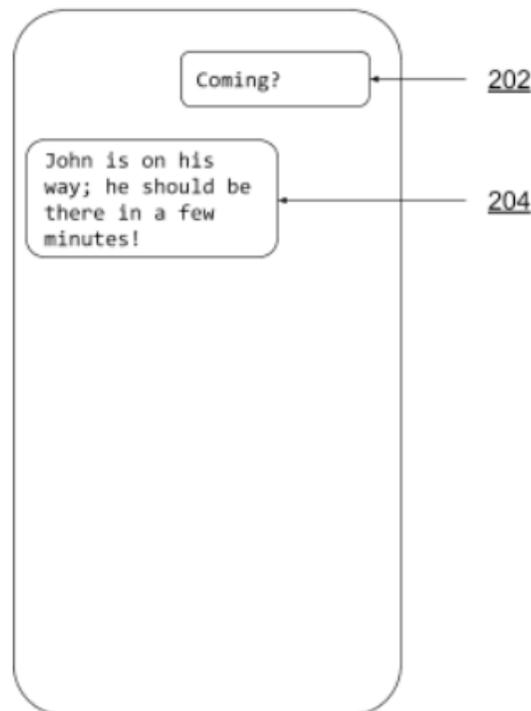
Fig. 2: An example of automatic reply based on context

Example (Fig. 2): A user named John is running late to a meeting and receives a message (202) ("Coming?") from a co-attendee requesting John's status. The virtual assistant, having determined that John is late but is headed to the meeting, composes and sends an automatic response (204) stating, "John is on his way; he should be there in a few minutes!"

Example: A user named Jane is currently occupied, e.g., in a meeting or on the phone. She receives an incoming phone call or text communication. The virtual assistant, having determined

that Jane is occupied, composes and sends an automatic response stating that Jane is busy: "Sorry, Jane is busy right now; I'll ping her in 20 minutes."

For important connections, e.g., those on the user's starred contacts or frequently-contacted list, more information can be possibly, if permitted by the user.

Example: A user is driving the car when an incoming phone call is received, e.g., from the user's spouse. The virtual assistant, having determined that the user is currently driving, composes and sends an automatic response stating, "I'm driving to the store; be there in ten minutes."

As the virtual assistant learns patterns, it can suggest handling routines.

```
When you leave this
location, you often text
Sarah, 'On my way home.'
Should I do that for you
now?

NO THANKS                YES
```

Fig. 3: An example of a virtual assistant suggesting routines

Example (Fig. 3): A user habitually texts a spouse upon leaving his place of work. The virtual assistant suggests to the user, "When you leave this location, you often text Sarah, 'On my way home.' Should I do that for you now?"

As mentioned before, the trigger for the virtual assistant can be based on factors such as data from device sensors, information available to the virtual assistant, activation of the do-not-disturb mode of the mobile device, etc. The techniques of this disclosure can be implemented as a standalone application or can be integrated into existing applications, e.g., a virtual assistant application, a messaging application, a device operating system, etc.

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

A mobile device user may temporarily be unable to respond to an incoming call or message, e.g., due to the user being in a meeting, or other contexts where the user cannot operate the device. This disclosure describes techniques for a mobile device or virtual assistant to automatically reply to incoming messages or calls based on the user's context, when the user is an occupied state. The techniques are implemented with specific user permission.