Improving Fitness Routines Using Virtual Assistant

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ABSTRACT

Users often use fitness related apps on their mobile devices to manage their workouts and to store and share information about completed workouts. Managing workouts via such apps requires performing several manual tasks, such as setting various parameters, starting and stopping counters, etc. The tedium and burden of performing these tasks manually can take the user’s focus away from the workout. Further, the user can experience technical difficulties with the apps or their device which can take the attention away from the workout routine. This disclosure describes techniques to initiate and manage workouts automatically using a virtual assistant on a user device such as a smartphone.

KEYWORDS

- Fitness app
- Workout app
- Activities app
- Virtual assistant
- Heart rate
- Workout update
- Workout recommendation
- Workout music

BACKGROUND

Users often use fitness related apps on their mobile devices to manage their workouts and to store and share information about completed workouts. For instance, when going for a run, a user can start a running app, put on headphones to listen to music while running, and share...
parameters of the run with their friends. Similarly, when performing other exercises, such as lifting weights, a user can use an app to count reps and/or time. Managing workouts via such apps requires performing several manual tasks, such as setting various parameters, starting and stopping counters, etc.

The tedium and burden of performing these tasks manually can take the user’s focus away from the workout. Further, the user can experience technical difficulties with the apps or their device which can take the attention away from the workout routine. These issues can make the user lose track of the workout routine and the amount of calories burned. While solutions are available to automate some of the workout management tasks, these require the use of additional equipment.

DESCRIPTION

This disclosure describes techniques to initiate and manage workouts using a virtual assistant via a user device, such as a smartphone. A user can invoke the functionality by issuing an appropriate command to the virtual assistant to begin the workout, such as “Start the fitness routine,” “Initiate a run,” “Begin push-ups,” etc.

With user permission, the requested workout is initiated according to an activity plan created based on the corresponding set of user preferences related to the type of workout. The activity plan can include setting various appropriate counters and timers needed for the workout. For instance, lifting weights typically involves various measurable parameters such as weights, repetitions, time between repetitions, etc. A user can specify values for one or more of these parameters within the command used to initiate the workout. For instance, the command “Initiate a 5K run” includes the target distance for the desired running workout. If the user does not provide parameters connected to the requested workout via prespecified preference settings or
the workout initiation command, appropriate defaults for the corresponding counters and timers can be used to set the initial values with user permission. The user has the option to instruct the virtual assistant to adjust the parameters at any time.

![Flowchart](image)

**Fig. 1: Process to initiate and manage workouts via a virtual assistant**

Fig. 1 illustrates the general flow of the steps involved to provide the functionality described in this disclosure. Once a user initiates a workout (102), a plan for the workout is generated (104) according to the user’s preferences and/or defaults (120). The plan is then
carried out in steps (106) until expiration (110) of relevant timer(s)/counter(s) (108) or until the
user stops the workout (114) causing the timer(s)/counter(s) to reset (116). As detailed below, the
user can be provided updates, suggestions, or music during the workout, and a post-workout
summary (112) to share with others (118).

If the user permits, the progress of the workout according to the various counters and
timers can be used to deliver contextually appropriate updates during the workout until the
workout is completed or canceled. The updates can be based on appropriate workout-related
parameters such as:

- **Time**: The time elapsed and remaining.
- **Distance**: The distance covered and remaining.
- **Speed**: Current speed and average speed since the start of the workout.
- **Repetitions**: Number of repetitions performed and remaining.
- **Heart rate**: Current heart rate.

With user permission, the parameters and corresponding updates are selected based on
the relevance for the specific workout. For instance, the distance parameter is relevant for
running while the repetitions parameter is relevant for strength training. Updates regarding the
status of the parameters are delivered during the workout as notifications in any suitable form,
such as audio, banners, etc. Data used for the parameters can be obtained from the corresponding
sensors in the user’s device, such as accelerometers. Alternatively, or in addition, if the user
permits, the information can be obtained from external devices, such as pedometers, heart rate
monitors, etc.

Notifications can also include recommendations for appropriate adjustments to an
ongoing workout. For instance, the notifications can suggest that the user run faster, bike slower,
increase the lifted weight, etc. The recommended adjustments can be based on the user-specified workout targets, such as time, distance, speed, calorie burn, etc. For instance, if a user’s goal is to complete a 5K run in 30 minutes, then the user can be advised to adjust the current running speed to achieve that target, or if the user wishes to maintain a certain heart rate during the run, the user can be recommended the adjustments to running speed necessary to achieve the desired heart rate. In addition, the suggestions for workout adjustment can be based on relevant user information, such as age, weight, etc. if the user permits access to such information.

At the conclusion of the workout, the virtual assistant can generate a summary of salient aspects of the workout, such as distance, speed, weights, repetitions, etc. The user can choose to share the summary with others, such as the user’s friends on social media. If the user chooses, the workout summary can be shared using the relevant platform(s) or app(s).

The described techniques can also integrate workout activities with music playback. The virtual assistant can automatically provide music playback from the user device during the workout. The music can be chosen automatically in one or more ways, including but not limited to: playlist(s) created by the user, music consumed frequently by the user, music in the user’s language, music deemed to fit the type of workout, etc. and is determined based on user-permitted data.

The frequency and timing of updates and recommendations provided during a workout can be set by the developers and/or specified by the user and/or determined dynamically at runtime according to workout properties, target, and progress. With user permission, dynamic computations for certain parameters, such as current speed, can be performed across a short recent time interval, such as 30 seconds, that can be adjusted dynamically if needed or configured by the user. The user can issue commands to initiate and manage the workout via any
suitable mechanism, such as voice command, tap or gesture input, etc. Workout related user preferences and defaults can be stored locally on the device and/or externally in the cloud, as configured by the user.

The techniques described in this disclosure can support a diverse variety of workouts, such as running, biking, swimming, hiking, strength training, etc. The techniques can be extended and customized via additional user preferences and settings related to workouts, notifications, and recommendations. The techniques can enhance the utility of virtual assistants and improve the efficiency and effectiveness of workouts, thus helping users make better use of their mobile devices to achieve their exercise and health goals.

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 fitness goals, workout plans, music preferences, age, gender, social network, social actions or activities, 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 techniques to initiate and manage workouts automatically using a virtual assistant on a user device such as a smartphone. With user permission, the requested workout is initiated according to an activity plan created based on the corresponding set of user preferences related to the type of workout. The activity plan can include settings for various appropriate counters and timers of the workout. Workout progress as determined based on the counters and timers can be used to deliver contextually appropriate updates during the workout. Notifications provided can include recommendations for appropriate adjustments to the ongoing workout. At the conclusion of the workout, the virtual assistant can generate a summary of the salient aspects of the workout and enable the user to share the summary with others. The described techniques in this disclosure can support a wide variety of workouts.