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Erol Bicioglu

Henry Daw

Nupur Jain

Josh Ellis

Hongyu Long

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Audible Charging Sounds to Indicate Device Battery Level

ABSTRACT

Users of battery-powered electronic devices rely on visual battery level indicators to discern the charge status of the battery and correspondingly, available device usable time before the device needs to be plugged in. However, users with vision impairments or those not looking at the device screen may not be able to distinguish the battery level from displayed indicators. Such users may plug in the charging cable more often than necessary, out of precaution. This disclosure describes the use of a variety of audible sounds when a device is attached to a charging cable that is plugged into a power source to indicate that the device is being charged and also to indicate the current amount of charge remaining on the battery. The device operating system or other software can detect the plugged-in state as well as the battery level and play the corresponding sounds at appropriate times.

KEYWORDS

- Audible alert
- Charging sound
- Battery indicator
- Battery level
- Vision impairment

BACKGROUND

Users of battery-powered electronic devices such as smartphones, tablets, laptops, etc. rely on visual battery level indicators to discern the charge status of the battery and correspondingly, available device usable time before the device needs to be plugged in. However, users with vision impairments or those not looking at the device screen may not be able to distinguish the battery level from displayed indicators. Such users may plug in the charging cable more often than necessary, out of precaution. Further, some devices such as wearables may not include a display on which the device battery level can be indicated. Also, it may not be possible for such users to know the battery level even when the device is plugged into a power source. Some operating systems play a notification sound when a power cable is attached to a device for charging. While this sound serves to indicate that the device is being charged, it does not indicate the actual battery level.

DESCRIPTION

This disclosure describes the use of a variety of audible sounds when a device is attached to a charging cable that is plugged into a power source to indicate that the device is being charged and also to indicate the current amount of charge remaining on the battery. The device operating system (or other software) can detect the plugged-in state as well as the battery level and play the corresponding sounds at appropriate times.

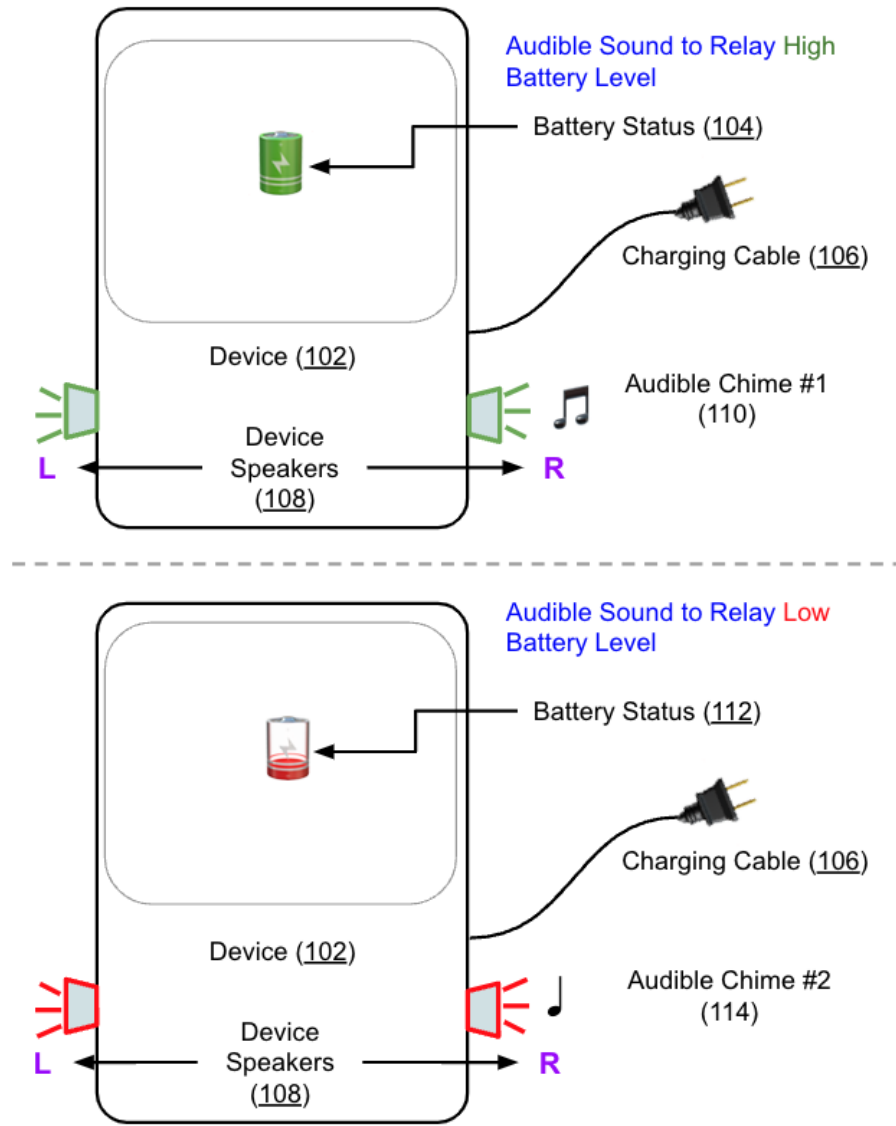


Fig 1: Audible sounds to indicate device battery level

Fig. 1 illustrates an example device on which audible sounds are utilized to indicate the device battery level. An electronic device with a battery (102) has a display on which the battery level is indicated, e.g., high battery level (104). The user can plug the device into a power source using a charging cable (106). At the time of plugging in the charging cable, a sound is played to indicate that the device is now charging, via the device speakers (108) or other available sound output device such as headphones, auxiliary speakers, etc.

Additionally, when the battery has a threshold high level of charge, a different sound is played (audible chime #1 110). For example, if the available battery capacity is more than fifty percent, a corresponding sound is played. Similarly, if the battery level is low (112), a different sound (audible chime #2 114) is played when the charging cable is plugged in.

The different numbers of sounds played based on the battery level can be selected based on device-specific requirements and/or user configuration. For example, three different sounds can be played, depending on whether the battery level is eighty percent or higher (high), or between twenty percent to seventy-nine percent (medium), or below twenty percent (low). The battery level thresholds can further be adjusted based on an estimate of available time of use based on the current battery level.

The described techniques can be implemented as part of a device operating system or other software, for any electronic device that has a battery, such as a smartphone, tablet, laptop, portable speaker, wearable devices, etc.

CONCLUSION

This disclosure describes the use of a variety of audible sounds when a device is attached to a charging cable that is plugged into a power source to indicate that the device is being charged and also to indicate the current amount of charge remaining on the battery. The device operating system or other software can detect the plugged-in state as well as the battery level and play the corresponding sounds at appropriate times.