By Larry Medwetsky

# Mobile Device Apps for People with Hearing Loss

## *Expanding the Horizons of Hearing Access*

**Wherever one goes nowadays, people are using mobile devices or tablets. One of the virtues of these devices is the ability to download from the myriad applications (apps), in effect, allowing mobile devices to literally become an all-in-one system. This is part two of Dr. Medwetsky's article on exploring the world of smartphone apps for people with hearing loss.**

In the last issue of *Hearing Loss Magazine* I discussed various hearing screening/testing and personal sound amplification apps. In this issue I review some of the incredible apps that have made life more convenient for individuals with hearing loss. It truly is an amazing time and all of us should take advantage of the opportunities that have opened up to us. These apps not only can help make communication easier but also allow for greater access to important alerts, and even for addressing hearing related issues such as tinnitus.

Writing this article has been a tremendous learning experience. As someone who witnessed the introduction of the personal computer into the marketplace, I have been astounded by what is now available. Any mention of specific products does not imply any form of endorsement. And, in many cases I am relying on the accuracy of the product's website, thus, I apologize for any false claims.

### Communication Enhancement Applications

This category includes a variety of apps that enhance communication access for individuals with hearing loss.

### Face-to-Face Communication

This category only includes apps that allow for direct communication without any augmentative support, such as captioning or the use of an intermediary. The latest Android and Apple operating systems provide high-quality video and a fast frame rate, which in turn, allow for effective communication for people with hearing loss

who benefit from speechreading when using the phone.

- **FaceTime** is an app that is included among the various iPhone/iPad options and works right out of the box.
- **Google Hangouts** is an app that allows for up to 10 individuals to communicate with each other and can be downloaded from either the App store (for iPhone or iPad) or Google Play (for Android devices)
- **Skype** is another face-to-face app that can be downloaded to either Apple or Android mobile devices. Video calls are available for 1:1 communication (and more than 1:1 on laptops/desktops, although does allow for group audio calls)

All of the above are generally free, except for some options of which a user might want to take advantage (e.g., long distance audio calls).

## Mobile Captioning

One recent innovation is analogous to voice-over, real-time captioned services for landline phones (such as **CapTel** and **CaptionCall**). In this scenario, individuals who use their voice but can't hear well on the regular voice phone talk into their mobile device or tablet and communicate with others via the use of a relay service. Rather than the communications assistant (CA) typing what the hearing person is saying (which requires a highly trained stenographer), the CA who has "trained" the software to recognize his or her voice, repeats (shadows) what he or she hears from the hearing person.

The software then transcribes the CA's spoken information for relay to the screen of the mobile phone or tablet used by the person with hearing loss. These apps are free upon registration and depending on the service chosen are available for either Android and/or iPhone. Companies providing this service include **ClearCaptions**, **CaptionCall Mobile**, and **Hamilton Mobile CapTel**.



*An example of mobile captioning*

## Real-Time Voice Recognition

Imagine going to a lecture or noisy restaurant and catching all of the spoken information on the screen of your smartphone or tablet. Live Caption is an example of a voice recognition app that has been developed for use in everyday settings, whereby an individual speaks into the mobile device with the voice transcribed into real-time text. An adaptation of this approach is to have the talker speak into a Bluetooth microphone paired with the mobile device, thus, allowing a talker to be up to 30 feet away from the user's smartphone, yet still being able to see the text on the phone.

**Let Me Hear Again** is an app that allows for face-to-face chat, converting voice into text (up to 41 languages). The app can also transcribe instructions or directions into text messages for later recall, and even save class lectures to phone in the form of text.

One voice recognition app that appears to be promising for use at meetings or large group settings is **Transcence**. This app can transcribe speech from various individuals onto screen in near real time. To make this possible, the app connects to several phones and activates their mics to capture what everyone is saying, then uses voice recognition software to assign the text for each person in the group a color for their speech bubbles. At the

time of this article, the software was in beta-testing.

Another app that is not yet available but offers unique features is **RogerVoice**. With RogerVoice, the individual with hearing loss calls or receives calls on their smartphone that are instant transcriptions of what the other speaker is saying, regardless of their language. Unlike other speech recognition software that involves being trained to a single voice, this software is meant to work with any voice, thus errors can occur in the transcription. However, basic conversations—such as ordering on the phone or making an appointment are less prone to errors.

An app that supplements the aforementioned mobile communication apps is **VoxSci for Mobiles**. This app transcribes voicemails into text and delivers them to the mobile device as a text (SMS) message and/or email with MP3 attachment. A related app is **Glide**, which allows for video messaging—be it live or kept for later.



*Transcence Voice recognition app allowing for group conversations*



*RogerVoice voice-to-text allowing for transcription in multiple languages*

## Mobile Device Apps

### Alerting Apps

Hearing the doorbell, the phone ring, or the fire alarm are everyday sounds that are important to detect but might be difficult for an individual with hearing loss. A number of apps have been developed that enable the mobile device user to be alerted to important environmental sounds. These apps can be used not only as a support at home, but also in a hotel room or any other enclosed environment. The following are some of these apps:

- **Braci Pro** is an app that according to its website is able to detect up to a thousand sounds at a distance up to 35 meters away and recognize these sounds within 2-4 seconds. It is also compatible with the Pebble smart watch or any other Android wear.

- **MyEardroid** has been developed to detect and identify common sounds. Diverse sound notification modes are incorporated, such as vibration, text and image.

- **Otosense** comes with a general library of sounds as well as be trained to identify unique alerts in one's home or elsewhere.

- **ViBe app** allows one to choose contacts and set different vibration patterns for each of them, thus, allowing the user to know who is calling without even taking the phone out of their pocket

### Hearing Loss Simulator

The **Hearing Loss Simulator** app developed by Starkey is a wonderful tool to demonstrate how speech and environmental sounds might sound to different individuals with hearing loss. One can choose to use this as a general education tool or find an audiogram that most closely resembles your hearing loss to demonstrate how speech might sound to you.

*Hearing loss simulation using the Starkey Hearing Loss Simulator app*

*Example of the Braci Pro app displaying some of the sounds that can be detected and serve as alerts to individuals with hearing loss.*

## RECREATION ENHANCEMENT APPLICATIONS

### Subtitled Apps for Movies and Television shows

A number of apps, many of them free, allow you to download and view subtitles for movies and TV shows. A downside to these free apps is that they have some limitations and the presence of ads. Some of these apps do not play the actual show but display synced subtitles while one is simultaneously watching a movie or show on television, or when one is at a movie theater. Some of these apps support more than 20 languages so it not restricted only to English users.

### Synced Lyrics

I have always loved listening to music. However, it has always been frustrating to me that my hearing loss usually does not allow me to understand the words in most tunes. Recently, downloadable apps have been developed for syncing lyrics to music on media sites such as Pandora, Shazam, Spotify, YouTube, etc. Some of these sites provide lyrics as an inherent feature of the app (such as Pandora, Shazam, and YouTube).

There are also a number of sites that do not provide lyrics, but one can overcome this by using an external app to sync lyrics with the music site (such as syncing Musixmatch to Spotify). In addition to syncing the lyrics to the music, these apps have the ability to identify the name of the song title and music artist. Having this feature truly has added to my enjoyment of music.

### Tinnitus Relief

Tinnitus (i.e., ringing in the ears) is defined as the perception of sound in the absence of an external sound source and affects approximately 10 percent of the population (Kochkin, Tyler & Born, 2011). The goal of tinnitus management is to make symptoms less prominent and distressing. Current philosophies include a combination of education/counseling, amplification and sound enrichment. The purpose
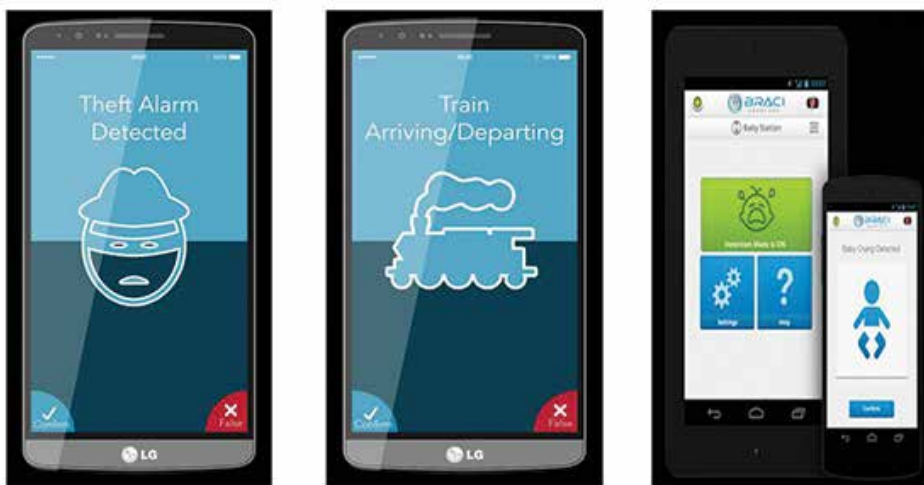
of sound enrichment is to provide supplementary sounds (often broadband) to help clients focus their attention away from their tinnitus. A number of apps have been developed to assist individuals who are seeking relief from their tinnitus. The following is a review of some of the tinnitus apps that are available.

- **Phase-Out** allows the individual to determine the frequency and intensity of their tinnitus. The app subsequently plays back sounds that are 180° reversed phase waves for one hour. The app manufacturer recommends doing this over a number of days or few weeks.

- **Phonak Tinnitus Balance (PTB)** is intended to be part of a personalized tinnitus management program provided by a hearing care professional familiar with the management of tinnitus. The PTB app is the sound component of the program. Sounds can be selected from the client's personal smartphone music library, or from the list of default sounds within the app. The individual rates how effective each sound is in achieving its desired effect (soothing, background or interesting) and the overall ratings can be reviewed with the hearing care professional to reach the optimal sound plan. If one uses Phonak hearing aids, one can stream the sounds over Bluetooth via a Phonak ComPilot directly to one's ears.

- **Tinnitus Masker (Explosive Apps)** is designed to drown out sounds associated with tinnitus. The sounds used by Tinnitus Masker are typically soothing, focusing on the frequency areas usually most associated with tinnitus. Examples of sounds include white noise, rain drizzle, crickets, and waves on the beach.

- **Whist** provides relief for tinnitus sufferers by allowing them to find/create/store sounds they find works

best in masking or suppressing their tinnitus. Each of Whist's controls adjusts easily-understood characteristics of the sound. The individual is able to match the pitch, noisiness and loudness of the tinnitus to find the best sound providing tinnitus relief. In turn, the user has controls for presenting either tones or noise, adjusting the level/balance, and whether the sound is to be presented continuously or in pulsed fashion.

## Built-In Features for Users of Apple (iPhone and iPad) and Android Mobile Devices

Numerous features are already included with the purchase of a mobile device. Perhaps the most important is one that required much lobbying and eventual legislation, that of hearing aid compatibility. For individuals with hearing aids who used cell phones when they first came out, many of them experienced a buzzing in their hearing aids due to incompatible cell phones. Without going into detail, most cell phones are now able to provide a high-quality signal without any interference when used by someone wearing hearing aids.

## Apple iPhone and iPad

In addition to features such as sound/ringer volumes, the following are some of the built-features included on recent iPhones/iPads:

- **Voice Recognition Software (VRS)**: Apple's built-in VRS is Siri. This feature allows the user to control the device or pose queries by voice, as well as serve as a form of a dictating machine. Unlike many VRS trained to recognize specific voices, Siri (as well as Android's VRS) makes no attempt to model individual voices. Rather it records short pieces of the incoming speech, sends them off to a powerful Cloud computer which compares the sound pattern with a database of thousands of people speaking thousands of words, and sends back the text which produces the best statistical fit.

- **Multi Messaging Service (MMS)**: The iPhone supports MMS which enables users to send text or multimedia to one or more individuals, thus, allowing for instant messaging, chat rooms, and social networking.

- **FaceTime**: As discussed earlier, FaceTime allows for effective communication for individuals who rely on speechreading for augmenting the auditory signal when using the phone or communicating via American Sign Language.

## Additional features can be accessed on smartphones via the following steps:

1. Select Settings
2. Select General
3. Select Accessibility

These features include:

- **Left/Right Balance**: If an individual has poorer hearing in one ear versus the other, Apple devices allow for volume adjustment of the right/left channels

- **Mono Audio**: Songs are usually recorded in stereo (i.e., separate tracks that play in the right and left channels). This means that an individual with a hearing loss in only one ear (or who has much better hearing in one ear) can miss out on music or audio content from the audio channel being delivered to the poorer ear. Mono audio allows the iPhone to direct both audio channels to each ear, thus an individual with a unilateral hearing loss can avoid losing a whole channel of sound

- **Subtitles and Captioning**: By activating this option, videos of any kind that have built-in subtitles or closed captioning can be displayed on the video screen.

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- **Visible and Vibrating Alerts**: In addition to vibrating in silent mode, the iPhone can be set to display a full screen image or photo for incoming calls, text messages, emails, and calendar items.

Under the Accessibility option, one can also proceed to Step 4, and choose "Hearing Aids." In this mode one can check "Bluetooth" to pair the cell phone to one's hearing aids, as well as activate the "Hearing Aid Mode," which increases the cell phone's electromagnetic field strength for effective use with hearing aids that have t-coils.

### Android Devices
Android phones/tablets include many of the same features as the iPhone/iPad; such as Left/Right balance, Mono Audio, and Visible and Vibrating Alerts. It also possesses built-in voice recognition software that can be accessed via pressing the microphone icon.

To access the other built-in features, the following steps must be carried out:

1. Select Settings

2. Under System, choose Accessibility

3. Select Hearing under Categories

In this category, one has access to:

- Pulse notification light for incoming notifications or calls
- Select hearing aids to improve the sound quality of the phone when used with hearing aids with t-coils
- Turn on/off the captioning program; if turned on, one can set the look of the captioning
- Adjust the volume L/R balance
- Turn the Mono Audio feature on/off
- Turn on/off a baby cry detector
- Turn on/off Auto Haptic. When on, the phone vibrates in time to sound when listening to music or watching videos (a feature that some deaf individuals might enjoy)

### Concluding Thoughts
It truly is amazing what is now available to people with hearing loss who use mobile devices. I have learned so much while writing this article, and I plan to take advantage of many of the built-in features that come with my smartphone as well as access some of the downloadable apps I have discussed. I hope these articles have been of interest and that you have obtained information that you can put to good use. It's exciting to imagine what the next few years will bring. I look forward to these new apps breaking down communication barriers in ways I could not have imagined just a few years ago.

Well, I'm off to go listen to some music and use one of my syncing apps to sing along; hopefully, no one is around, otherwise, they'll remind me of my terrific singing voice—*Not!* **HLM**

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### Apps Mentioned in this Article
For the website addresses for the apps mentioned in this article, go to the online version of this article at hearingloss org>HearingLossMagazine> Current Issue. Click on the title of Dr. Medwetsky's article and see the live links at the end of the article.

# Online Learning

**Registration is open for the HLAA Hearing Loss Support Specialist Training (HLSST)**

HLSST is an online, self-paced training program which provides core knowledge for individuals who work with people with hearing loss. The training consists of four classes with as many as fourteen lessons in each class. Lessons are composed of multiple readings and captioned videos. The classes are:

Class I:    Hearing Loss: The Basics

Class II:   Coping with Hearing Loss

Class III:  Hearing Assistive Technology and Services

Class IV:  Advocacy, Resources and the Law

You may register for one class at a time or register for the entire program at once for the discounted price of $225. For complete details, table of contents, and registration information, visit hearingloss.org/content/hlsst.

Questions? Email Nancy Macklin at nmacklin@hearingloss.org.

# Apps Mentioned in this Article

For the website addresses for the apps mentioned in this article, go to the online version of this article at hearingloss. org>HearingLossMagazine>Current Issue. Click on the title of Dr. Medwetsky's article and see the live links at the end of the article.

The following lists the URLS for various products discussed in this article. Unless indicated within parentheses, all of the apps are available for both Apple iPhone/iPad or android devices.

## ALERTING APPS

**Braci Pro**
http://braci.co/

**MyEardroid**
http://www.tecnalia.com/en/myeardroid/what-is-myeardroid.htm   (Android only)

**Otosense**
http://www.betaboston.com/news/2014/09/08/otosense-is-an-app-that-hears-and-learns-the-sounds-of-the-world/
($7.99 for either Apple or Android devices)

**ViBe app**
https://play.google.com/store/apps/details?id=com.base2apps.vibes&hl=en   (Android only)

## FACE-TO-FACE VIDEO CALLS

**Face Time**
http://www.apple.com/ios/facetime/
(Apple only, easily accessed by an icon on the iPhone)

**Google Hangouts**
https://plus.google.com/hangouts

**Skype**
https://support.skype.com/en/faq/FA10613/what-do-i-need-to-make-a-group-videocall?q =Group+video+chat

## HEARING LOSS SIMULATOR

**Starkey Hearing Loss Simulator**
https://itunes.apple.com/us/app/hearing-loss-simulator/id398352094?mt=8
($1.99 for Apple only)

## MOBILE CAPTIONING

**ClearCaptions**
http://www.clearcaptions.com/

**CaptionCall Mobile**
https://www.captioncall.com/CaptionCall_Solution CaptionCall-Mobile.aspx
(Apple iPad 2 or later devices only)

**Hamilton Mobile CapTel**
http://www.hamiltoncaptel.com/smartphone/what_is_app. html

**Real-Time Voice Recognition
Glide**
http://www.glide.me/

**Live Caption**
http://www.livecaptionapp.com/
($3.99 to download)

**Let Me Hear Again**
https://play.google.com/store/apps/details?id=appinventor. ai_drsharonbaisil.LetMEHearAgain_Free_US
(Android only-free or Pro version for $9.99 to download)

**RogerVoice**
https://www.kickstarter.com/projects/olivierjeannel/rogervoice-phone-engaging-the-world-with-the-hard
(Android only)

**Transcence**
http://www.engadget.com/2014/10/15/transcense-app-speech-deaf/

**VoxSci for Mobiles**
http://www.voxsci.com/

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### SUBTITLE APPS FOR MOVIES

http://www.technorms.com/44159/ automatically-download-movie-subtitles-on-android

### SYNCED LYRIC SITES

**Pandora Google Play**

https://play.google.com/store/apps/details?id=com.pandora.android&hl=en

**Pandora iTunes**

https://itunes.apple.com/us/app/pandora-radio/id284035177

**Shazam**

http://www.shazam.com/apps

**YouTube Google Play**

https://play.google.com/store/apps/details?id=com.google.android.youtube&hl=en

**YouTube iTunes:**

https://itunes.apple.com/us/app/youtube/id544007664?mt=8

### SYNCING LYRIC—EXTERNAL SITES

**Musixmatch**

https://play.google.com/store/apps/details?id=com.musixmatch.android.lyrify&hl=en
(Android only)

**Sound Hound Music Search Google Play**

http://appcrawlr.com/android/soundhound-2
($5.99 to download)

**Sound Hound Music Search iTunes**

http://appcrawlr.com/ios/soundhound-2

### TINNITUS RELIEF

**Phase-Out iTunes**

http://appcrawlr.com/app/search?go=go&q=tinnitus&device=iphone (Apple only)

**Phonak Tinnitus Balance Google Play**

https://play.google.com/store/apps/details?id=com.phonak.tinnitus&hl=en

**Phonak Tinnitus Balance iTunes**

https://itunes.apple.com/us/app/tinnitus-balance/id621383952?l=de&ls=1&mt=8

**Tinnitus Masker (Explosive Sounds) iTunes**

https://itunes.apple.com/us/app/tinnitus-masker/id301353562?mt=8
(Apple only)

**Whist**

http://www.sens.com/products/whist-custom-sound-therapy-for-tinnitus/
(Free for Apple via iTunes; $1.99 for Android via Google Play)