

# Better Quality of Life Through Sound and Vision? Yes, Please!

Presented by

The Front Porch Center for Innovation and Wellbeing

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*Exploring innovative uses of technology to empower individuals to thrive, particularly as we age.*



# Health and Information Disclaimer

The Front Porch Center for Innovation and Wellbeing does not represent the opinions nor recommendations of physicians and other trained specialists. We are not audiologists or optometrists and do not prescribe any clinical remedies.

We encourage anyone with any specific hearing or vision conditions to seek out a trained specialist.

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# Prevalence of Hearing Loss

- Hearing loss **doubles per age decade**
- **Approximately 1 in 3** between ages 65 and 74 has hearing loss and nearly half of those older than 75 have difficulty hearing
- **Less than 20%** of those with hearing loss use hearing aids



Source: *Hearing Loss Association of America*

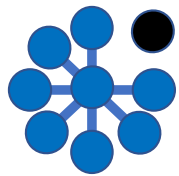
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Increased social isolation from hearing loss



Only 30% of adults 70+ with hearing loss who could benefit from hearing aids have used them



Half of older adults 75+ face hearing difficulty



3X fall risk with mild hearing loss



Up to 40% faster cognitive decline

# Personal Sound Amplification Products

- Direct to consumer solutions that are not FDA-regulated
- Custom sound enhancements and noise filters
- Smartphone controlled
- Relatively low cost
- Hearing aids (require prescription): \$1,500 to \$10,000/pair
- PSAP's (over-the-counter): \$150 to \$500



**NUHEARA** | **IQbuds**  
BOOST



**BOSE**  
Hearphones



**Apple AirPods**

\*Source images from <https://www.nuheara.com/>,  
[https://www.bose.com/en\\_us/support/products/bose\\_wellness\\_support/hearphones.html](https://www.bose.com/en_us/support/products/bose_wellness_support/hearphones.html), and [www.apple.com/airpods/](https://www.apple.com/airpods/)

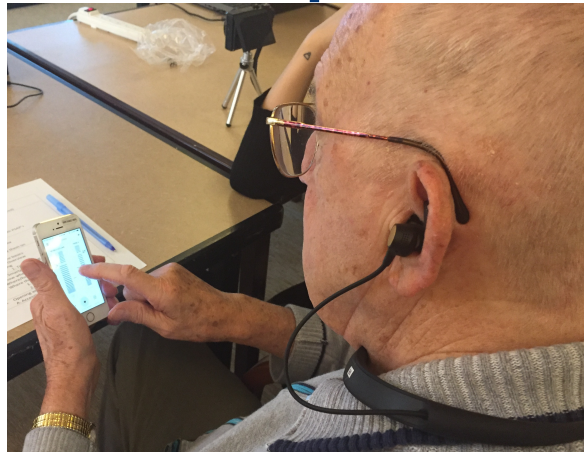
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# Personal Sound Amplification Products



**NUHEARA** | **IQbuds**  
BOOST



**BOSE**  
Hearphones



**Apple AirPods**

\*Source images from <https://www.nuheara.com/>,  
[https://www.bose.com/en\\_us/support/products/bose\\_wellness\\_support/hearphones.html](https://www.bose.com/en_us/support/products/bose_wellness_support/hearphones.html), and [www.apple.com/airpods/](https://www.apple.com/airpods/)

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# Stigma & Changing Perceptions

“If one person is wearing their [PSAP] to stream music and another person is wearing it to amplify speech and hear their conversation, no one is going to know. So you're wearing tech in your ear proudly.”

-KR Liu, Doppler Labs, Hearing Health advocate

YOUR HEALTH

## Is It Time For Hearing Aids To Be Sold Over The Counter?

April 24, 2017 · 4:28 AM ET  
Heard on Morning Edition



PATTI NEIGHMOND



JANE GREENHALGH



Kristen Unruh for NPR

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# Hearables for All, 2019



- **57.3%** of users agreed that their PSAP devices increased their ability to hear
- **39.3%** agreed that they were more likely to partake in community events
- **29.1%** felt that their PSAP changed their enjoyment of life for the better



# Hearing Assistive Technology: Smartphone Apps

## Petralex

- Assesses hearing with a simple test
- “Profiles” customize sound enhancements with filters to adjust to environment
- \$4.99/Mo; \$35.99/Yr



*\*Source images from Petralex*

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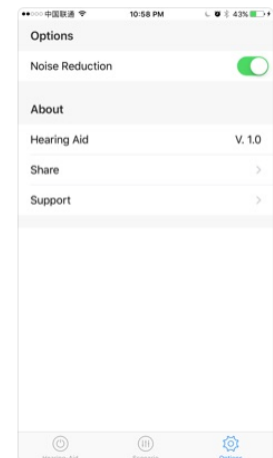
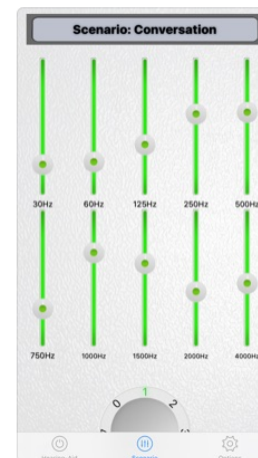
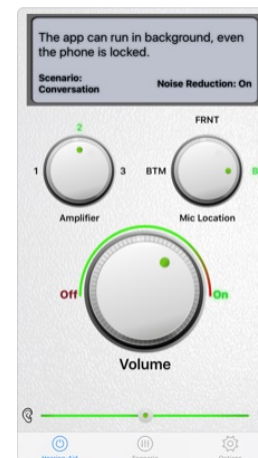
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# Hearing Assistive Technology: Smartphone Apps

## Hearing Aid

- 3 levels of audio amplification:
- Amplification location
- Mic location
- Volume
- 12-band audio equalizer with 6 kinds of listening scenarios (e.g. conversational, music, video, and high, medium, and low hearing)
- \$4.99/Mo; \$35.99/Yr



\*Source images from Hearing Aid app

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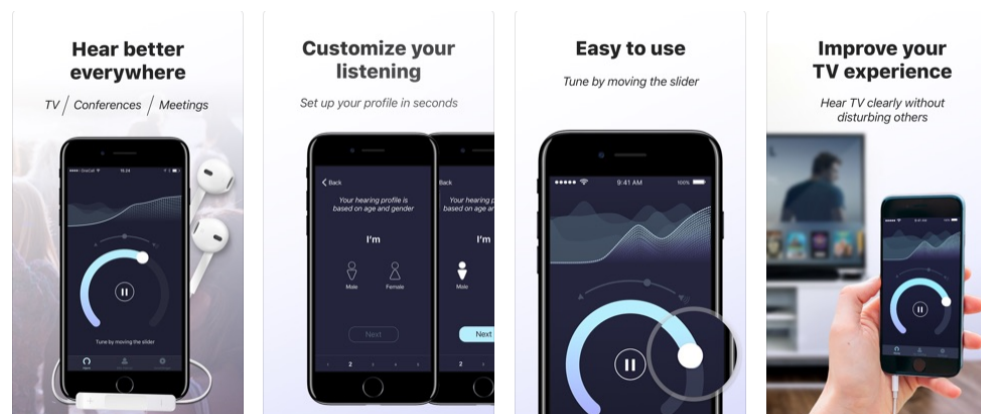
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# Hearing Assistive Technology: Smartphone Apps

## Mobile Ears

- Easy to use and intuitive interface
- Requires wired headphones
- Noise filtering and reduction
- Excellent for minimal to mild hearing impairment
- Free



*\*Source images from Mobile Ears app*

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# Hearables and Voice

**Voice integration (e.g., SIRI, Alexa, Google)**

Smart Home devices in Home App  
Calendar and appointment reminders  
Music

**“Live Listen” or “pass through”  
accessibility option**

Phone mic

Watching TV, listening to presentations,  
or 1-1 conversations



\*Source images from [www.microsoft.com/en-us/](https://www.microsoft.com/en-us/), [https://store.google.com/us/product/pixel\\_buds](https://store.google.com/us/product/pixel_buds), and [www.apple.com/airpods/](https://www.apple.com/airpods/)

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# Hearing Tech Resources

## Dave Kemp, Oaktree Twitter and Podcast

- [https://twitter.com/oaktree\\_dave](https://twitter.com/oaktree_dave)
- <https://futureear.co/>

## Reddit

- [/r/hardofhearing/](https://www.reddit.com/r/hardofhearing/)
- [/r/deaf/](https://www.reddit.com/r/deaf/)

## Verizon: Assistive Technologies for the Hearing Impaired

- <https://vz.to/3aumZgG>



**verizon**<sup>✓</sup>

\*Source images from [www.Twitter.com](https://www.Twitter.com), [www.Reddit.com](https://www.Reddit.com), [www.Verizon.com](https://www.Verizon.com)

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# Why should we be paying attention to vision?

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**“Vision loss can affect one’s quality of life, independence, and mobility and has been linked to falls, injury, and worsened status in domains spanning mental health, cognition, social function employment, and educational attainment.”**

*2016. Making Eye Health a Population Health Imperative: Vision for Tomorrow. National Academies of Sciences, Engineering, and Medicine*

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# Dependence

## Impact of low or no vision:

- Reading
- Socializing
- Pursuing Hobbies

## Everyday challenges:

- Basic self-care activities
- Eating
- Dressing
- Shopping
- Medication management
- Driving



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# Mobility and Falls

46.7% of people with severe vision impairment reported having fallen (compared to 27.7% without impairment).



2016. *Making Eye Health a Population Health Imperative: Vision for Tomorrow.* National Academies of Sciences, Engineering, and Medicine

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# FPCIW IrisVision Pilot

## Study Setup

- A pilot study of 8 volunteers at Wesley Palms
- 2 groups each using IrisVision headsets for 2 months each



## Training & Support

- IrisVision provided remote training over the phone once a week to all participants.
- Onsite Wesley Palms staff checked in with participants every two weeks for extra support.

\*Source images from [IrisVision.com](https://www.irisvision.com)

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# IrisVision Pilot Findings & Lessons

## RESULTS



- 4 of 8 volunteers dropped out before the end of their two month test
- 4 of 5 post surveys collected indicated a 3 or higher on a scale of 1-5 of usefulness (5=most useful)
- 3 of 5 were able to watch more TV because of the headsets

IrisVision can be a valuable tool for the right person:

- Vision challenges, but not complete blindness
- Patience and openness to learning new technology
- Ability to hear the instruction being given by IrisVision over the phone



## CONCLUSIONS

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**“I hadn’t seen my wife’s face in 5 years.”**

**“It feels comforting being able to see things clearer.”**

**“(The headset) is too cumbersome for me.”**

**“I messed up some of my trainings because I couldn’t get things right.”**

# NuEyes



## PRO 3

- Lighter weight smart glasses
- 52 degree field of view
- Object, motion, speech recognition

## NuCall

- Meet with a provider for telemedicine sessions through the smart glasses



\*Source image from [www.nueyes.com](http://www.nueyes.com)

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# Vision App Solutions



**Sullivan+**

AI based

4.5 stars

Free

Android



**BeMyEyes**

Caller based

4.25 stars

Free

iPhone / Android



**Aira**

Caller based

4.25 stars

In-app purchases

iPhone / Android

*\*Source images from Sullivan+ app, BeMyEyes app, and Aira app*

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# Sullivan+

(Android)



Similar to a phone camera, just point to an object to identify it by activating the AI feature.



## MOST USEFUL FEATURES:

AI Mode

Magnifier

Video calls

Text-to-speech from PDFs

Easy How-To Instructions

*\*Source image from Sullivan+ app*

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# BeMyEyes

(iPhone / Android)

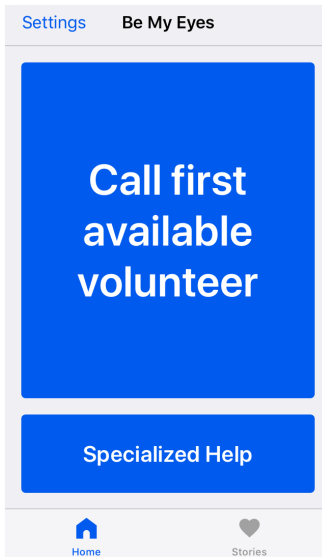


Connect to a BeMyEyes volunteer via video chat, and they will help describe your surroundings. Point your camera to what needs to be identified.

Human element

**BIG** buttons  
text

\*Source image from BeMyEyes app



## Specialized Help

*Assistive Technology*

*Beauty & Grooming*

*Blindness Organizations*

*Home & Cleaning*

*Personal Health*

*Technical*

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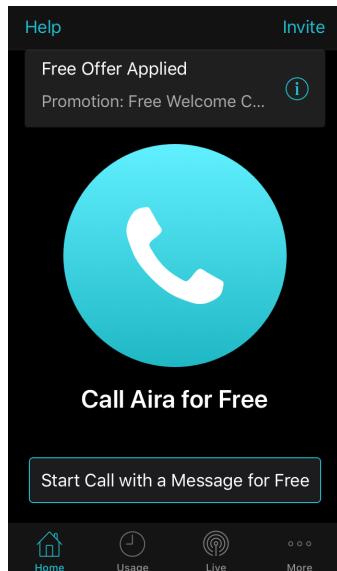


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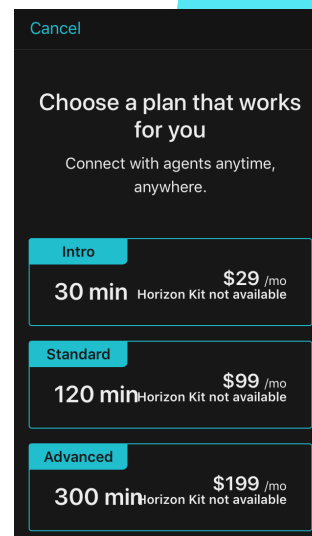
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# Aira

(iPhone / Android)



Similar to BeMyEyes, connect with an Aira Agent via phone call through the app to help with daily tasks.



- *Log in needed*
- *Up to 5 minutes free*
- *Can make daily calls*
- *Call ratings*
- *Can link “rideshare accounts” for Uber and Lyft*

\*Source image from Aira app


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# Phone Settings

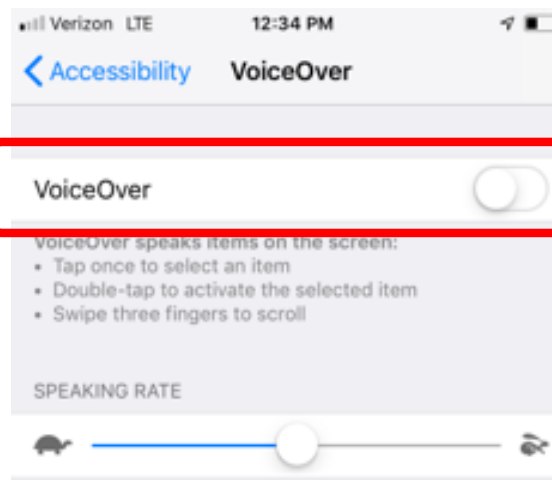
iPhone		Android
Hearing Aid Compatibility & Accessibility > Hearing	<b>SOUND SETTINGS</b>	Sound quality and effects
VoiceOver	<b>SCREEN READER</b>	TalkBack
Accessibility > Larger Text & Bold Text	<b>BIGGER TEXT</b>	Font size and style
Speech	<b>TEXT-TO-SPEECH</b>	Text-to-speech

# Phone Settings – Screen Readers

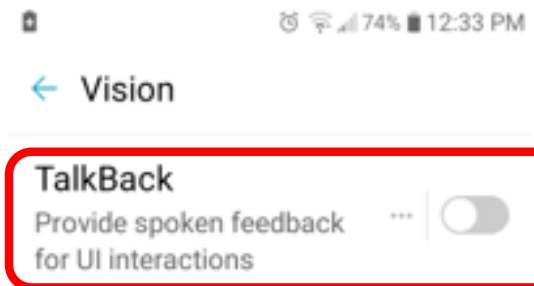
## iPhone



Settings > General > Accessibility > VoiceOver



Settings > General > Accessibility > Vision > TalkBack



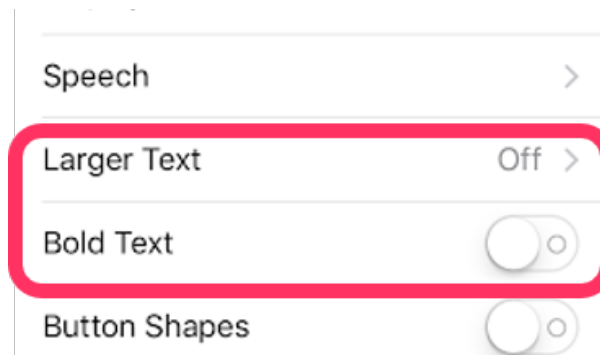
## Android

# Phone Settings – Text Settings

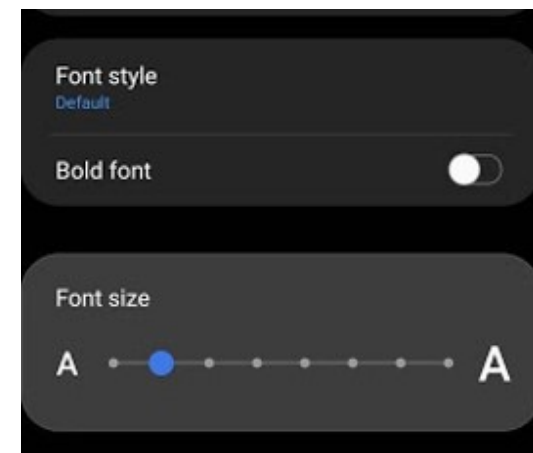
## iPhone



Settings > General > Accessibility > Larger Text or Bold Text



Settings > General > Display > Font Size and Style



## Android

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# Phone Settings – Text-to-Speech

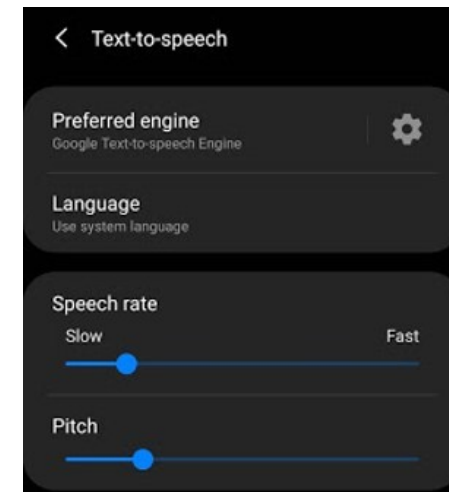
## iPhone



Settings > General > Accessibility > Speech



Settings > General > Accessibility > Text to Speech



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# Sound & Vision Project

## What is included?

- Explore emerging innovations in vision and hearing assistive technology through a series of pilot studies
- Sharing learnings through educational workshops and toolkits

## Program Goals

- How can new vision and hearing technologies support older adult independence?
- How voice can integrate with these technologies?
- Sharing our learnings with the larger community

# Be A Part of the Action!

We need volunteers like you to be a part of mini pilots to test low vision and sound solutions. Be a part of the research that could help improve hearing and vision for older adults!

If Interested in testing Vision  
Solutions Contact:  
[KBULLEMAN@FRONTPORCH.NET](mailto:KBULLEMAN@FRONTPORCH.NET)

If Interested in testing Sound  
Solutions Contact:  
[JSLEE@FRONTPORCH.NET](mailto:JSLEE@FRONTPORCH.NET)

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# Questions?

## Thank You!

[KBULLEMAN@FRONTPORCH.NET](mailto:KBULLEMAN@FRONTPORCH.NET)

[JSLEE@FRONTPORCH.NET](mailto:JSLEE@FRONTPORCH.NET)

[HTTPS://FPCIW.ORG/IMPACT/](https://fpciw.org/impact/)



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