

In Search of an Accessible Cell Phone

Jennifer Mundi, MS, ATP
Courage Center



Anywhere you go these days, you will hear a song or ring of a cell phone. It does not matter whether you are at a grocery store, concert, school, or doctor's office. Cell phones have inundated the way we live and communicate with each other. We virtually are reachable 24 hours a day. There once were very little choices in making a cell phone of user-friendly. Times are changing.

Solutions for Mobility

Even in the car, people continue to talk while driving. Statistics show this is more dangerous than driving drunk. So if some of the technologies used to combat unsafe driving can help someone who as dexterity problems then it may help everyone.



Figure 1-Driveblue+

Sony Ericsson has a unique magic word feature on certain phones that allows for true hands free operation. You prerecord a unique magic word on the phone such as "abracadabra" and also record voice tags to contacts and phone functions. This allows you to use the magic word feature to call contacts, answer calls, and hang up the phone. A typical sequence to take an incoming call would be to speak "abracadabra" into the phone's microphone followed by "telephone". The Driveblue+ car kit from Parrot is used in conjunction with the Sony Ericsson cell phone to give the system a loud speakerphone with integrated microphone and better voice recognition capabilities than the phone itself. Alternatively, calls can be answered by pressing the large green button on the Driveblue+ and ended by pressing the large red button. Voice dialing can be performed for pressing the large green then saying the voice tag of the contact. Using the wireless Bluetooth capabilities of the phone, the phone makes a wireless connection to a Driveblue+ car kit. Alternatively, the magic word feature of the Sony Ericsson phone models can be activated with a headset instead of a car kit if that suits your needs better. The kit can be mounted onto a powered wheelchair or can be adapted for use in a room. There are several cell phones which can use this technology besides the Sony.

Symbian OS is an alternative to the specialized expensive AT phone solutions with a lot more features. This solution gives complete access to ALL functions of the Nokia cell phone as well as the Nokia N Gage QD game playing cell phone. This includes making and ending calls, taking pictures and short movies, e-mail, text messaging (SMS and MMS), web browsing, playing music files, playing games, calendar, and many more options. This solution offers a completely accessible telephone/PDA/entertainment system. With the Nokia 6620, you can even watch TV with a service plan from MobiTV.

LG voice recognition system is an excellent voice input system which can be downloaded onto several cell phone models. This solution is not completely hands-free, it requires at least two switches. One switch allows access to the phone's extensive voice commands. Another switch allows incoming calls to be answered, hang up existing call, and redial last called number.



Figure 2-Switch Connection

Portable keyboards connect to cell phone or PDA using wireless Bluetooth technology allowing the larger portable QWERTY keyboard to replace the smaller built-in phone keyboard.

The Firefly cell phone is one with large buttons. The features are slimmed-down, but for access purposes, it becomes easier

to operate. It may be beneficial not only for mobility but also cognition.

About a year ago, GreatCall Inc. introduced its Jitterbug cell phones to address this need for simple cell phones. The Jitterbug cell phones offer large keys, a free operator service and the phone's own number prominently displayed under the screen. And, unlike other cell phone companies, Jitterbug offers no contracts, no fees to switch or cancel, no long distance and no roaming fees.



Figure 3-Jitterbug

Chaperone Child phones can use the Chaperone Child Get-It-Now*

application to have their location shared with family members via the Chaperone website, the Chaperone Parent Get-It-Now application, or Child Zone SMS Alerts. Chaperone lets you easily locate your family member's Chaperone Child phone from your Chaperone Parent phone or PC - in real time, at any time. Chaperone also lets you define a Child Zone - a specific area, such as school or summer camp. When your family member enters or leaves the Child Zone with their Chaperone Child phone, Chaperone will automatically send an SMS Alert to your or any Verizon Wireless phone you designate with the time and location of your family member's Chaperone Child phone.



Click to Phone - Switch Scanning Cell Phone Bluetooth

Interface will allow the user to Call, Answer, Hangup, send/receive text messages, take pictures/video, control media player, and every other function on phone with only an ability switch! Simply push any button, puff, bite, turn your head, or just blink an eye then say name of person you want to call! Compact and portable Switch Scanning Bluetooth Interface switch adapts cell phone - use on wheelchair, take along to bed, or anywhere else.

Figure 4-Scanning Cell phone

Vocalize! Wheelchair Cell Phone Voice Control System plus Voice Controlled Digital Media Player for a cell phone. Always available voice controlled calling & digital entertainment without pressing any buttons or even having to see the phone! Easily and inconspicuously mounts on wheelchair and communicates with cell phone wirelessly using Bluetooth protocol.

The Verizon Center for Customers with Disabilities (VCCD) offers communications solutions for customers with vision, hearing, speech, cognitive, or mobility limitations. Consultants at the centers are trained to understand accessibility issues and telecom technologies. So, in addition to routine customer service, you can learn about products and services that may enhance your life and the way you communicate.



Solutions for the Vision

For customers who need a larger font, Verizon Wireless offers the Knack, which has an easy to use menu with large font and has large font when dialing. The Knack also has voice commands and dedicated colored keys for ease of use and navigation.

GMS software works with the Symbian OS and some other operating systems. The Symbian OS is just like any other operating system except it is designed for the mobile phone. You are probably familiar with the Windows operating system for the PC and the Symbian is the equivalent for the cell phone. One of the purposes of the Symbian OS is to allow third party software to be installed onto the phones. There are other mobile operating systems but Symbian is the leader and all accessible software for the visually impaired has been written for it. Symbian OS cell phones are typically made by Nokia and are GSM so the major carriers are AT&T Wireless, Cingular, and T-Mobile. The accessible software designed for the blind and visually impaired includes Code Factory's Mobile Magnifier, Mobile Accessibility, and Mobile Speak and Cingular TALKS. The main advantage is that it offers the most flexibility to use almost all of the phone's features. It allows the user to text message and e-mail. The disadvantage to this solution is the cost considering you have to pay additional for the accessible software. Mobile Speak is a screen reader application installed on a Symbian-based mobile phone which allows you to use the device even if you cannot read the visual screen. Information displayed on the screen is rendered in synthesized speech output generated using text-to-speech (TTS) technology and routed through the device's speaker or a headset. Screen contents can also be presented in Braille if the mobile phone is connected to a Braille device with a refreshable Braille display. Speech and Braille output can be used at the same time, or independently,

Apple put their VoiceOver screen reader on the Apple iPhone 3GS. Voice Over was first seen on Apple Mac computers so there is a level of familiarity with it. What is so remarkable about this feature is that the screen reader comes at no additional charge and is intended to allow a blind user to use the phone just as any other user would.

Current third party screen reader programs for smartphones such as Code Factory Mobile Speaks do not attempt to have the user control the phone directly through the touch screen as a sighted user would. For example, Code Factory Mobile Speaks breaks the touch screen into 4 quadrants, in essence the screen becomes 4 virtual keys. Touching the screen at certain points causes the phone to perform other actions associated with the respective virtual key. How you touch the screen quadrant (long tap, short tap, slide tap, etc.) also causes certain functions to also occur. Unlike a sighted user, the blind user would not actually touch the battery indicator on the screen to obtain the phone's battery status. Instead, the blind user would use hotkeys on the keyboard to get that information. Apples claims on the iPhone accessibility page that the user won't need to memorize hundreds of keyboard commands or navigate



Figure 5-Knack



Figure 6-iPhone

the smartphone by endlessly pressing tiny arrow keys to find what you're looking for.

VoiceOver works with all of the built-in software applications that come installed on the iPhone such as iTunes, Mail, safari, etc. Apple is working with third party software application developers to make their applications VoiceOver compatible. I do not know how well developers adhere to the VoiceOver standard. There are currently 2 manufacturers of screen reading software for cell phones: Code Factory and Nuance.

Running on Symbian™ Series 60 phones, Nuance TALKS converts the displayed text on the mobile handset into highly intelligible speech. With Nuance TALKS, blind and low-vision users can take advantage of most features, including contact directories, caller ID, text messages, help files, access to the Nokia web browser, and other screen content, available on their mobile phones.

Nuance ZOOMS™ is the latest addition to the Nuance Accessibility Suite. Designed especially for the needs of the low-vision community, Nuance ZOOMS, magnifies the content of mobile handset displays and enables people with low vision to navigate through the screen and make use of all of their phone's functions.

Solutions for Hearing

There used to be a very limited number of good cell phone solutions for the deaf consumer. Now, there is an increasing number of choices with QWERTY keyboards, instant messaging, e-mail and web browsing. That makes it harder for the deaf consumer to know what is the best choice. Some options to look at include the Sidekick II, HipTop II, palmOne Treo600/650 and Blackberries. Each one has its own pros/cons and features that might make one a better solution for your needs. There are a couple an accessible cell phones for the hard of hearing or a messaging device/PDA with an assistive listening device

HATIS hearing aid headsets: HATIS hearing-aid telephone headsets were designed by the deaf, for the deaf and because a deaf entrepreneur absolutely positively had to understand clearly on all kinds of cell, cordless and landline phones at any hour, in any car, plane or space, anywhere on the planet, to conduct a productive personal and professional life.

Induction neckloops are another option. When the phone is in use, a microphone built into the loopset picks up your voice, while the sound from the phone is converted into a low-power magnetic field by the loopset. This magnetic field is picked up by the T-coil in the hearing aid and converted back into sound. By using inductive technology, the sound coming from the phone is amplified more efficiently and background noise is eliminated more effectively.

Not all hearing aids have telecoils. To use the telecoil, generally, either the hearing aid is switched to the "T" position or a button on the hearing aid is pushed to select the telecoil setting. The telecoil picks up magnetic fields generated by telephones and converts these fields into sound. Telecoils are particularly useful for telephone communication because they permit the volume control of a hearing aid to be turned up without creating feedback or "whistling," and background noise can be reduced, especially when using cell phones in noisy places.

Ending Comments

Figuring out the exact system which will work for you takes research and patience. It is sometimes difficult to find credible information or people with experience using this technology. However, a cell phone can offer many other benefits other than casual conversation. Safety, organization, flexibility, and portability are a few to consider when deciding whether or not to make the plunge into purchasing one.