

Mobile Phone Accessibility

Introduction

Recently I had to go for an errand to Intercomp Ltd. to repair my mobile, and while I was there we arranged to review the most recent mobile phones in order to assess their accessibility and whether or not they are suitable to work with screen reading software like Mobil Speak. Mr. Malcolm Borg, Nokia Sales Executive, was very helpful and showed me several models.

New models are coming on the market often and not all the new models are that good for blind users and users with limited mobility. Apart from this, although some multimedia phones can use screen reading software they are still not suitable for non-sighted persons. One common reason is the inclusion of multiple cameras or a camcorder feature. So far low-vision and blind persons have limited use for these expensive features.

Here I mention some mobiles, their main features and their current list price. I strongly recommend that prospective buyers check out the mobile in her/his themselves and try it out for themselves before deciding to buy.

We started off with the E series mobiles which are designed for business users, then we reviewed the N series which is geared for multimedia users. We also learnt that when releasing a particular model, and later add some features to that same model, the Nokia company put the letter I after the model number eg: **Nokia 6230i**.

All these mobiles can run the Symbian OS and therefore can be made to run the Mobile Speak screen reader software.

What access technology is available?

The use of mobile phones is one of the challenges facing the vision-impaired. Most mobile phones are designed primarily on visual concepts, without considering the needs of the blind or partially sighted. Mobile Speak is a screen reader solution for mobile phones that allows access to most of the functionality of the device. Mobile Speak also provides a magnifier version for users with low vision.

Mobile Speak is to mobile phones what Windows Eyes and JAWS are to desktop computers.

What can this access technology allow me to do?

With Mobile Speak you can:

- Make and receive calls.
- Write and read SMS, MMS, and e-mail messages.
- Browse the internet using the Services application.
- Manage call logs and the contacts list.
- Use the Calendar and To-Do list.
- Set the clock and alarms.
- Configure profiles and phone settings.
- Access other applications such as the Calculator, Converter, Notes, File Manager.
- Run third-party applications for Symbian Series60 3rd edition.
- Connect with computers, mobile phones, and other devices.

Which phones can be made more accessible?

Mobile Speak screen reader and magnifier supports Series60 3rd Edition on the latest generation of mobile phones powered by the Symbian 9.x operating system. It can also provide access to the built-in MP3 player on Series60 3rd edition phones.

E50 - slim line / budget phone

The E50 is the smallest and lightest of the E series phones. The power key is located on the top right of the phone, and has a textured notch. The joystick is located in the centre of the phone, just beneath the screen. The function keys are all grouped around the joystick. On the left side of the joystick, just below the screen is the left soft key. The menu key is to the lower right of the left soft key, and is a smaller key. The dial key is directly below. On the right side of the joystick, just below the screen is the right soft key. The clear key is to the lower left of the left soft key, and is a smaller key, while the hang up key is directly below. The edit key is located on the right side of the phone, beside the screen. The numeric keypad is a standard layout

with raised keys and a tactile marker on the 5 key. The camera lens is located on the back of the phone.

E65 - slim and easy to use keypad

The E65 is a compact slider phone. The power key is located on the top right of the phone. The joystick is located in the centre of the phone, just beneath the screen. Immediately to the left and right of the joystick are four hotkey buttons (two each side) which give access to the phonebook and multimedia applications. Surrounding all these keys is a thin, circular group of keys with the following functions: On the top-left side, just below the screen is the left soft key, while the right soft key is located on the top-right side. On the left side and below the left soft key is the send key, while on the right side and below the right soft key is the hang up key. Below the joystick and to the left is the menu key, and to its right is the clear key. The numeric keypad is found by sliding out the lower part of the phone. It is a standard layout with raised keys and a tactile marker on the 5 key. The camera lens is located on the back of the phone.

E70 - full QWERTY keyboard

The E70 has a movable keyboard which allows it to operate in two modes. When closed, it acts as a standard phone keypad. However when opened up, it transforms into a full QWERTY keyboard, with half of the characters to the left of the screen and half to the right. The power key is located on the upper right side of the phone, just above the screen. The camera is located on the back of the phone.

E61I - PDA (very light) + camera

These phones are in the style of a blackberry PDA, with a full QWERTY keyboard. The power key is located on the upper right corner of the phone. The joystick is located in the centre of the phone, just beneath the screen. The function keys are all grouped around the joystick. On the far left side of the joystick, just below the screen is the left soft key. The dial key is directly below it, while the menu key is located to their right, in between these two keys and the joystick. On the far right side of the joystick, just below the screen is the right soft key. The hang up key is directly below it, while the mail key is located to their left, in between these two keys and the joystick. Below all these keys there is an array of keys grouped into 4 rows

and 10 columns. These keys have a standard QWERTY layout. The top three rows contain the alphabetic characters, with the numeric keys being the central 4 keys in each of these rows. The clear key is the rightmost key on the second row. There are two edit keys – one is the second key from the left on the bottom row, and the other is the second key from the right on the bottom row. The larger key in the centre of the bottom row is the space bar. The bottom left key changed input modes, while the bottom right key brings up the symbol table when inside an editor. The E61i has a camera on the back of the phone, and also has extra hotkeys to access mail and multimedia, on the left and right of the joystick respectively.

N93 - cam corder with big keys

The N93 is a flip phone with a twistable top portion designed for photos and video. The power switch is located on the top of the phone when closed, on one of the sections which swivels when open. The joystick is located in the centre of the phone, just beneath the screen. The function keys are all grouped around the joystick. On the left side of the joystick, just below the screen is the left soft key. The dial key is directly below. On the right side of the joystick, just below the screen is the right soft key, while the hang up key is directly below. Below these keys are 4 horizontal keys which are, from left to right, the edit key, the menu key, the multimedia key and the clear key. The numeric keypad is a standard layout with raised keys and a tactile marker on the 5 key.

N80 - slider phone

The N80 is a slider phone. The power key is located on the top of the phone. The joystick is located in the centre of the phone, just beneath the screen. On the left side of the joystick, just below the screen is the left soft key. The dial key is directly below. On the right side of the joystick, just below the screen is the right soft key, while the hang up key is directly below. Below these keys are 4 horizontal keys which are, from left to right, the edit key, the menu key, the multimedia key and the clear key. The numeric keypad is found by sliding out the lower part of the phone. It is a standard layout with raised keys and a tactile marker on the 5 key.

N73 - easy to use navipad

The N73 is a compact phone with a candy-bar shape. The power key is located on the top of the phone. The joystick is located in the centre of the phone, just beneath the screen. On the left side of the joystick, just below the screen is the left soft key. The dial key is directly below. On the right side of the joystick, just below the screen is the right soft key, while the hang up key is directly below. To the left of the left soft key is the tall and narrow menu key, and below it is the edit key. Two symmetrically opposite keys exist on the right side: the multimedia key and below it the clear key. The numeric keypad is a standard layout with raised keys and a tactile marker on the 5 key.

N91 - small seperated keys, 4GB HDD, music pad (N90 includes cam corder)

The N91 is slider-phone designed for playing music. The power key is located on the top left of the phone, and the keyboard lock key is a slider switch located to its right. When closed, the slider is a music controller, with play, stop, rewind and fast forward keys. The joystick is located in the centre of the phone, just beneath the screen. On the left side of the joystick, just below the screen is the left soft key. The dial key is directly below. On the right side of the joystick, just below the screen is the right soft key, while the hang up key is directly below. By opening the slider, the other phone keys are revealed. The numeric keypad is a standard layout with raised keys and a tactile marker on the 5 key. The edit key is located to the left of the 1 and 4 keys, and the clear key is located to the right of the 3 and 6 keys. The menu key is located on the right side of the phone, beside the screen.

N76 - very light and well featured, buttons too small for some

The new Nokia N76 runs the S60 v3 UI on top of the Symbian OS, and so includes all the smartphone features that users have come to expect from the Nokia's Nseries. The folder design holds music control keys underneath the 160x128 pixel resolution external display, and conceals a 16 million color capable 2.4" QVGA resolution internal screen that can also be used in a landscape orientation. It includes a 2.0 megapixel camera, with 26MB of internal memory and micro SD memory expansion supporting up to 2GB cards to store all your photos and music. With UMTS 3G high-speed data and Bluetooth v2.0, the Nokia N76 should satisfy most on the

connectivity front. Despite the feature list, the Nokia N76 weighs just 115g .

N95 - for the power user

Combining a cell phone, GPS receiver, digital camera/camcorder, digital audio player, and PDA into an all-in-one multimedia computer/phone, the Nokia N95 features a 2-way slide design for easy switching between telephony, entertainment, and Web browsing. The 2-way slide concept makes it easy to switch between different modes, going from reading maps to watching a video with a simple slide. A numeric keypad slides out from one end of the device while dedicated media keys slide out from the opposite direction, converting the display into full screen landscape mode.

The Nokia N95 actually has two cameras, a high resolution camera on the back of the device (the main camera in landscape mode) and a lower resolution camera on the front (the secondary camera in portrait mode). With the Carl Zeiss optics on the 5-megapixel camera, you can capture print quality photos and DVD-like quality video clips. Camera technology is being used for colour recognition to help blind persons discern different colours. Object recognition software is still in its infancy.

The Nokia N95 also offers a large 2.6-inch QVGA 16 million color display, built-in stereo speakers offering a 3D stereo effect, standard 3.5 mm audio jack, support for compatible microSD cards and mini USB for convenient data transfer. Other highlights include 802.11b/g Wi-Fi with WPA2/WPA security, Bluetooth v2.0 connectivity, and 160 MB of internal memory.

Conclusion

From our experience at FITA, when buying a mobile phone, nowadays there are five main factors that determine the choice. A primary concern is usability and accessibility for obvious reasons. A phone which is easy to manipulate and use will be used more often and result in a better user experience. Other factors have different priority depending on the specific user. These are price, upgradability, performance, one's lifestyle and the operating environment.

FITA has sought to even out the extra cost of making mobile phones accessible which can range from Lm50 to Lm150. Thanks to an agreement reached with Intercomp Ltd. disabled persons who buy and install assistive technology software on their mobile may be entitled to discounts when purchasing a mobile phone through their retail outlet.

We hope you found this information useful, and look forward to add more phones to the above list.