

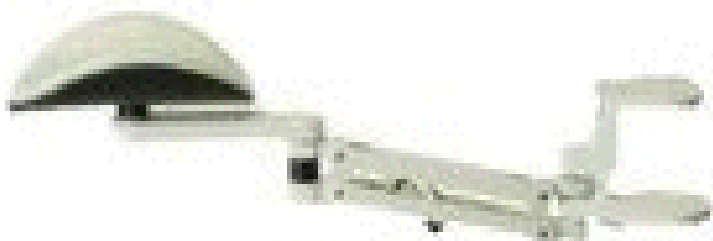
## Computer Access for People with ALS

(Sources and prices of all equipment and software are included at the end of this document.)

The Assistive Technology and Seating Service (ATSS) is frequently asked to assist clients involved with the ALS team to continue using a computer. Although each client is different we see similarities across clients. We have identified a number of products and approaches to computing that seem to work effectively for clients with ALS.

### Direct Keyboard Access

Direct access to a keyboard is simple and straightforward. We encourage our clients to continue using the keyboard for as long as they reasonably can even if this involves using only one or two fingers.



Some clients find that supporting their arms makes it easier to use the computer keyboard. We use **articulating supports** made by Ergorest to accomplish this end.

Individuals who use only one finger to operate a computer keyboard encounter difficulties when entering characters that require more than one key to be held down at a time. For example capital letters and punctuation like !@#% ^& require two keys to be held simultaneously. While commands like Control-Alt-Del require multiple keys. The need for activating more than one key at a time can be overcome by going to **Accessibility Options** in the Windows Control Panel. In the Accessibility Properties click on *Use Stickykeys* then *OK*.

The **Accessibility Options** also allow correction for unwanted key repeats. In the Accessibility Properties window click on *Use filter keys* then *Settings*. From the subsequent Setting for Filter Keys window select *Settings*. In the Advanced Setting for Filter Keys on *No keyboard repeat* and click on *OK*.

### Pointer Access

Pointer refers to the many devices that will drive a cursor around the computer display. These include mice, trackballs, joysticks, touch pads etc.

It has been our experience that individuals tend to be able to control a pointer even when keyboarding becomes very difficult or impossible.

Some pointing devices that have worked well for our clients with ALS include



1. Standard mice The ATSS has worked with a number of individuals who were able to use a regular mouse quite comfortably and accurately. Sometimes they encounter difficulties with clicking. In such instances we separate the clicking process from the pointing process. This can be done by means a **Switchhopper** or a **Switcheroo**. Each of these devices plugs into a computer port. For example, the mouse may be plugged into the USB port and the Switchhopper or Switcheroo into the PS2 port. A switch can then be plugged into Switchhopper or Switcheroo.

2. Trackballs There are many trackballs on the market. The one we have found most effective is the Kensington TurboMouse. It can be operated by an arm, a finger, the back of the user's hand etc. Both buttons on the left side function as the left click.



3. Head-Operated Mice We have seen a number of clients with ALS who use head-operated mice successfully. There are several on the market. Some require the user to wear a headset while others require only a small reflective dot be worn on the individual's forehead or eyeglasses. All enable users to operate a switch (which can be placed anywhere) for mouse clicks.

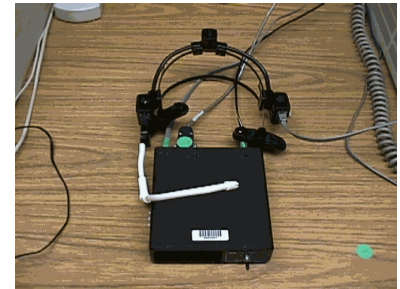


The most economical choice is the **Smart Nav** by Natural Point. It does not require a headset. The major drawback of this unit is that it requires software to operate. There is a potential for conflict with other software running on the computer. We have not however experienced this in the ATSS.



Our preferred headmouse is the **Extreme Headmouse** from Origin. It does not require headset or software. The ATSS has successfully used an earlier version of this device for more than a decade.

If the potential user's best switch access is via a puff switch then the Prentke Romich **HeadMaster** is a good choice. It requires the user to wear a headset. The puff switch mounted to the headset activates a click



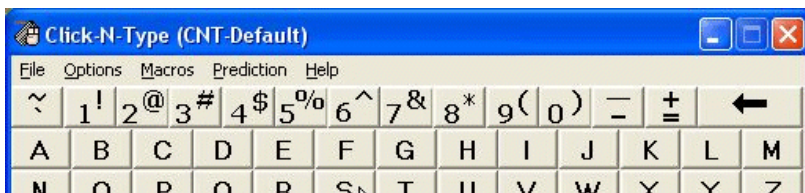
### A note about double clicking

Some individuals have trouble producing a double click quickly enough to satisfy the computer's time requirements. Double click speed can be adjusted through the mouse driver in the Control Panel.

Another approach is to use a single click to select the desired item followed by the enter key. (Single click followed by Enter = Double click)

### How do you type with a pointer?

Word processing by mouse requires the use of an on-screen keyboard. There are a number of commercial products available but a good place to start is with Click-N-Type a free program that can be downloaded from [www.lakefolks.org/cnt/](http://www.lakefolks.org/cnt/)



The user selects letters by pointing and clicking. These letters then feed into a word processing document or email. This program also includes a



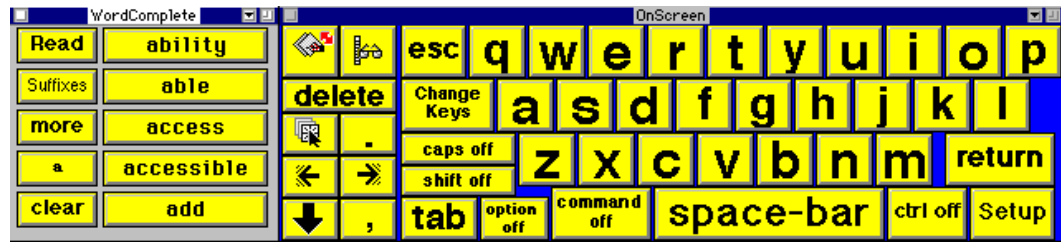
rudimentary predictor (more about predictors below).

Some commercial on-screen keyboards we use in the ATSS are:



**WIVIK** by Prentke Romich enables a number of different keyboard layouts. It provides prediction and abbreviation to increase productivity.

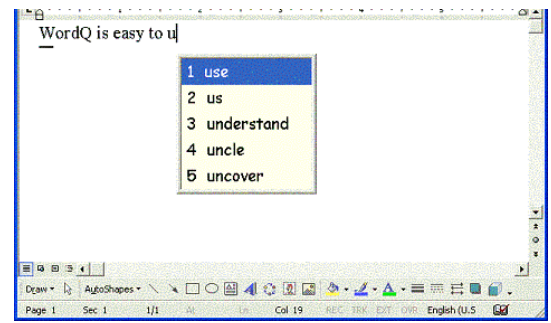
**OnScreen** by RJ Cooper includes prediction. It can be downloaded for a fourteen-day trial from [www.rjcooper.com](http://www.rjcooper.com). **OnScreen** is the most economical of the commercial products on the market.



## About Prediction

Direct typing or typing with a pointer and an onscreen keyboard can be a slow process. The user's efficiency can be increased through prediction/word completion software. This software makes guesses about a word being entered from the keyboard and presents a list of possibilities for the user to choose from. This can save many keystrokes.





The ATSS's preferred predictor is **WordQ**. It is incorporated in the WVIK program (See the WVIK screen shot above). It can be downloaded as a stand-alone program for a thirty-day trial from [www.wordq.com](http://www.wordq.com).

## About Abbreviation Expansion

Another method for increasing input speed is through abbreviation expansion. This enables a user to produce a phrase, sentence, paragraph, or a process by entering only a few letters. For example, the program could be taught that when "asap" is entered the text expands to read "as soon as possible".

Abbreviation expansion is incorporated into some programs (e.g., WVIK) but can also be found as a freestanding utility. You can download a free abbreviation expansion program from [www.shortkeys.com](http://www.shortkeys.com).

## Other Input Methods

Some of our clients have continued using a computer when they became unable to operate a keyboard or a pointing device directly. Most commonly these individuals use scanning operated by a single switch.

## Scanning

### Here is how typical scan setup might work

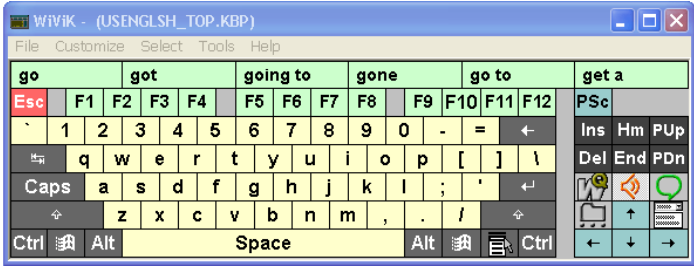
The user has a switch. The switch may be positioned anywhere so that it can be easily activated. Sometimes the switch is placed by the user's hand, head, or knee. There are many kinds of switches.

Below are a few examples.



The switch is connected to the computer possibly by the **Switchhopper** or **Switcheroo** (described earlier.)

There is an onscreen keyboard on the computer display. It may look like this.



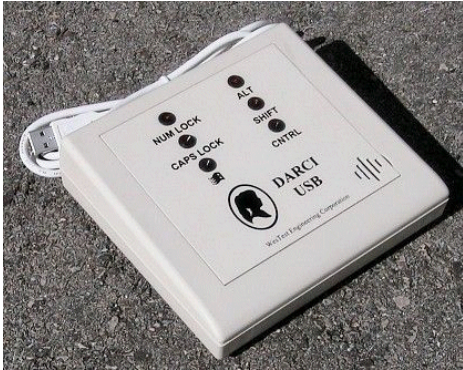
Let's say the user want to type the letter "s". He activates his switch and a scanner starts to move down the rows one by one. When the scanner gets to the fifth row (the one with the "s" in it) the user activates the switch again and the scanner starts to move through the individual letters in that row. When the "s" is illuminated the user activates the switch for the third time and the letter "s" is produced.

Certainly this is slow going but with prediction and/or abbreviation expansion the process can be sped up considerably.

If you want to try scanning download the free program **Click-N-Type** from [www.lakefolks.org/cnt/](http://www.lakefolks.org/cnt/). Select Scan Mode from the Options menu. You can use your mouse button as a switch. You will note the scan works a bit differently from that described above.

### Morse Code

Morse code is a faster method than scanning. It requires extensive, precisely controlled switching skills as well as a commitment to learning Morse code. Morse can be coded through one switch or two. If one switch is used the length of time it is held down determines whether a "dit"(short) or a "dah" (long) is produced. If two switches are used one produces a "dit" and the other a "dah".





The Morse code device we prefer at ATSS is the **Darci USB** made by WesTest. Although Morse is a very effective input method it is not one that has generally been used by our clients with ALS.

### Equipment Sources and Approximate Pricing

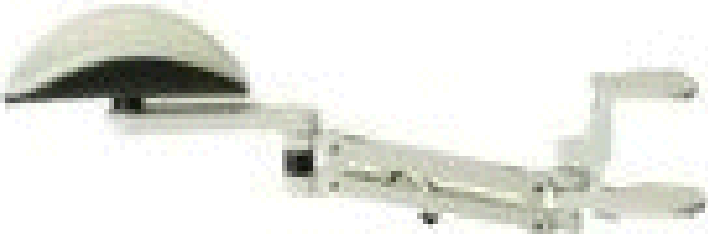


**Switcheroo**  
USB only \$99 US

**Switchhopper**  
Serial and USB \$89 US

**Source: RJ Cooper**  
27601 Forbes Rd. Suite 39  
Laguna Niguel, CA 92677  
800-752-6673 or 949-582-2749

[rjcooper.com](http://rjcooper.com)



**Source: Chairlines**  
2031 W. 4<sup>th</sup> Avenue  
Vancouver, BC  
604-736-7623

[www.chairlines.com](http://www.chairlines.com)

## ErgoRest Arm Support \$125 each

---



**Source: Abletech** (local)

604-532-8030

Source: ErgoCanada

[www.ergocanada.com](http://www.ergocanada.com)

## Kensington Turbo Mouse \$150

---



**Source: Abletech** (Local)

604-532-8030

**Smart Nav \$500**



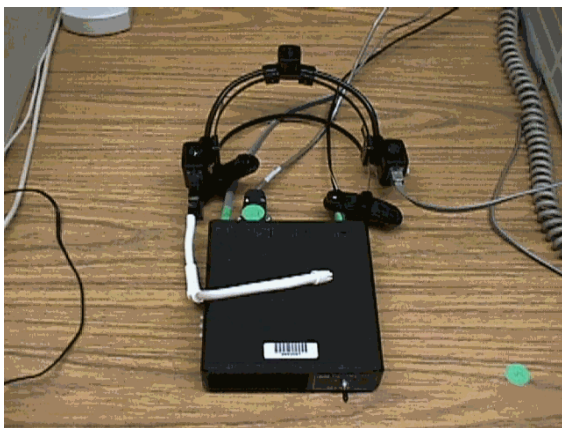
**Source: Aroga**

#150-5055 Joyce Street  
Vancouver, BC V5R 6B2  
800-561-6222 or 604-431-7997

[www.aroga.com](http://www.aroga.com)

**Extreme Headmouse \$1420**

---



**Source: Aroga**

#150-5055 Joyce Street  
Vancouver, BC V5R 6B2  
800-561-6222 or 604-431-7997

[www.aroga.com](http://www.aroga.com)

**HeadMaster \$1650**

---

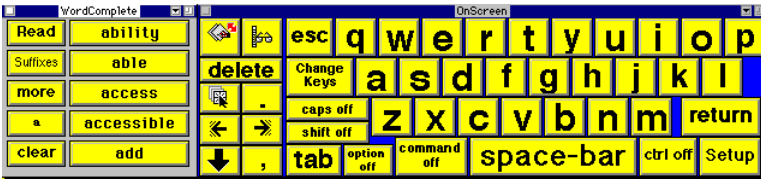


**Source: Aroga**

#150-5055 Joyce Street  
Vancouver, BC V5R 6B2  
800-561-6222 or 604-431-7997

[www.aroga.com](http://www.aroga.com)

**WIVIK \$500** (includes scanning, prediction, and abbreviation expansion)

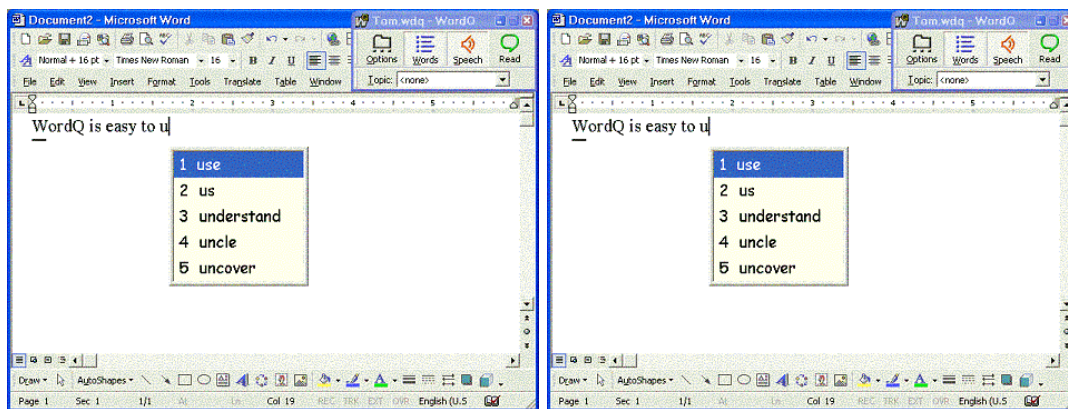


**Source: RJ Cooper**

27601 Forbes Rd. Suite 39  
Laguna Niguel, CA 92677  
800-752-6673 or 949-582-2749

[www.rjcooper.com](http://www.rjcooper.com)

**OnScreen \$109 US** (keyboard only; includes prediction)



## **Quillsoft Ltd.**

2416 Queen Street East

Toronto, ON M1N 1A2

1-866-629-6737

Tel: (416) 698-0111

Fax: (416) 698-1555

[www.wordq.com](http://www.wordq.com)

**WordQ \$235**

---

## **Switches**

from various companies including TASH, Ablenet, Enabling Devices, Zygo. They range in price from fifty to several hundred dollars depending on the switch chosen.

Consult with your occupational therapist to select the best switch for you.

## **Source: Insight Media**

10501-125B Street,

Surrey, BC V3V 5A8

604-581-2420

---



**Source: Darci Institute**  
810 W. Shepard Lane,  
Farmington, Utah 84025  
801-451-9191

[www.westest.com/darci/](http://www.westest.com/darci/)

*Note: The ATSS does not recommend other **Darci USB \$200** Morse coding devices made by this company.*