



DIRECTIONS

Technology in Special Education

Vol. 12 , No. 3

March 6, 1995

Assistive Technology Its Use CAN Help -- Part III

Assistive Technologies can take on many forms. This month we begin to talk about adaptive devices for computers. Specifically, we discuss adaptive input devices, their use, their costs, and their availability.

But, before we can begin to talk about adaptive devices and what they can do for our children, we need to spend a few minutes talking about what exactly it is that we need to adapt!! A short course on computers might come in handy here.

Standard Input

Computers are electronic boxes that perform a function (usually very quickly) for us. In order to be able to use these magic boxes, we have to provide them with information in a manner that they can understand (input). We normally do this with any number of devices... a keyboard, a mouse, a trackball, a joystick, and now even a microphone can be used to give a computer directions or input. The computer then takes the information that we input, and processes it through programs or applications that manipulate the input that we have provided. For example, keyboard strokes are displayed on the monitor in a Word Processing package. These keystrokes form words, paragraphs, and documents. Or, mouse movements

are used to select different sections of an educational package that helps to teach a youngster how to recognize the letters of the alphabet, or perform a math problem. Standard input devices are: keyboard, mouse, trackball, joystick, microphone, and bar code reader.

Adaptive Input

Individuals with either physical disabilities or developmental delays may not be able to manipulate the standard form of input device that is normally provided with a computer. What is available for these users are "adaptive devices" that provide a mechanism to deliver input into the computer in a manner that the individual user can manipulate easily. Adaptive or alternative input devices come in many many forms, shapes and sizes.

Let's see what is available today...

Keyboards



(Please see Alternative I/O, *DIRECTIONS: Technology in Special Education*, October, 1994 for a related article)

Standard keyboards are typically laid out in the traditional QWERTY format (the top left hand side of the rows) and are made for typists that use two hands and all ten

Conferences

Reprinted from NARIC Calendar of Events

Date: March 10-12

Event: Abilities Expo

Location: Tampa, FL

Contact: Coordinator Expocon. 203-256- 0915

Date: March 23-25

Event: 35th Annual Conference on California Transcribers and Educators of Visually Handicapped

Location: Santa Clara, CA

Contact: Ron Burke 916-445-1290

Date: March 30-April 1

Event: Collaborative Approaches: Disability, Aging, and Dispute Conflict Resolution

Location: Washington, DC

Contact: Frank Alley 703-642-5225

Date: April 2-5

Event: National Managed Health Care Congress

Location: Washington, DC

Contact: Paul Biclakiewicz 617-487-6708

Date: April 6-8

Event: 1995 NARPPS National Conference and Exposition

Location: San Francisco, CA

Contact: Coordinator: NARPPS 617-558 -5435

Date: April 8-11

Event: American Occupational Therapy Association 75th Annual Conference and Exposition

Location: Denver, CO

Contact: Jane King 800-87701383

fingers (Most times that's a real chore *without* any special needs!) They have rows and sections of special keys (function keys, control keys, editing keys, etc.).

Alternative keyboards, on the other hand, may have any or all of the elements listed in the following section

Alternative Keyboard Elements

- * Larger Keys
- * ABCD Layouts
- * Arrow Keys, TAB, ESC, Space Only
- * Configurable Custom Layouts
- * Require Interface Software
- * Keyguards
- * Smaller Keys to Reduce Range of Motion
- * On Screen Display Formats Used with mouse, switch or touch screen.
- * Touch Sensitive Membranes
- * User Designed Layouts with Pictures
- * Extended length cables
- * Dual Use with Standard Keyboard
- * Programmable

Prices

Alternate and on-screen keyboards range from as little as \$100.00 to as much as \$1500.00 each. These price variations depend upon the complexity of the keyboard, and the dealer. (NOTE: If a keyboard requires interface software, that pricing is separate!)



Switches

(Please see Technology Tip, *DIRECTIONS: Technology in Special Education*, February, 1995 for a related article)

Switches are used to interact with a computer on a slightly different level. Switches (commonly called single switches since they transmit a single signal to the computer) are used to select from options. These options are presented to the user by utilizing scanning procedures. For example, if a user is presented with three choices, each of the three choices will be highlighted for a specific period of time. The user selects a choice by hitting the switch when the choice is highlighted. This method can be used to select letters, numbers, or virtually anything from the computer screen. It may not be a quick means of communication, but it opens up a world of possibilities for a user who does not have the fine motor control necessary for keyboard or mouse control.

(Continued on page 6)

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Authors - We welcome editorial submissions. Please include name, address and phone. Submission will be returned with self addressed stamped envelope, if desired.

Vendors - We welcome product news. Please include pricing and contact name with press releases.

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Adaptive Device Vendors

Prentke Romich Company
1022 Heyl Road
Wooster, OH 44691 800-262-1984

Edmark
P.O. Box 3218
Redmond, WA 98073-3218
800-362-2890

Sunburst Communications
101 Castleton St.
Pleasantville, NY 10570
914-747-3310

Dunamis
3620 Highway 317
Suwanee, GA 30174-2329
800-828-2443

Adaptive Peripherals, Inc.
4529 Bagley Avenue
N. Seattle, WA 98103
206-633-2610

Adaptive Devices Group
1278 N Farris Avenue
Fresno, CA 93728
800-766-4234

AbleNet, Inc.
1081 Tenth Avenue, SE
Minneapolis, MN 55414-1312
800-322-0956

Apple Computer, Inc.
Worldwide Disability Solutions
20525 Mariani Ave., MS 36-SE
Cupertino, CA 95014
408-974-7910

Don Johnston, Inc.
1000 N. Rand Rd., Bldg 115
P.O. Box 639
Wauconda, IL 60084-0639
800-999-4660

Access Unlimited
3535 Briar Park Dr. , Suite 102
Houston, TX 77042
800-848-0311

Intellitools
5221 Central Ave., Suite 205
Richmond, CA 94804
800-899-6687

CLASS Adaptive Technologies
16 Haverhill Street
Andover, MA 01810
508-475-2492

R.J. Cooper & Associates
24843 Del Prado, Suite 283
Dana Point, CA 92629
714-240-1912

Exceptional Computing
450 NW 58th Street
Gainesville, FL 32607
904-331-8847

Linda Burkhart
6201 Candle Ct.
Eldersburg, MD 21784
410-795-4561

Street Electronics Corporation
6420 Via Real
Carpenteria, CA 93103
805-684-4593

DU-IT Control Systems Group, Inc.
8765 Township Road 513
Shreve, OH 44676-9421
216-567-2001

Adaptive Resources, Inc.
857 Collier Rd. NW#14
Atlanta, GA 30318
404-352-8064

Ability Research
P.O. Box 1791
Minnetonka, MN 55345
612-939-0121

TASH
Technical Aids & Systems for the
Handicapped, Inc.
70 Gibson Dr., Unit 12
Markham, ON L3R 4C2
416-475-2212

HACH
P.O. Box 10849
Winston-Salem, NC 27108
800-624-7068

Adaptive Communication Systems
Box 12440
PittsburQ, PA 15231
800-247-3433

Key Concepts
P.O. Box 21066
Charlotte, NC 28277
800-293-5090

IBM Special Needs Systems
1000 NW 51st St.
Boca Raton, FL 33432
800-426-4832

ON THE HIGHWAY

' AOL & Surfing Internet

In our continued search for *on-line* information that will assist parents and educators of children with special needs, this month we're taking a look at the *Internet* and what it has to offer. Since the Internet is a topic worthy of more than just a couple of pages, we'll focus this month only on Newsgroups and how parents and educators can utilize them in order to obtain pertinent data.

How Did It All Start ?

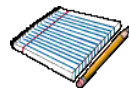
First, we need a little history though. What is this thing that everyone is talking about called the Internet? Well, back in the mid 1980's while working at the Illinois Institute of Technology, we (Janet and I) used to communicate and share information with other researchers and government agencies via a computer network named DARPA (Defense Advanced Research Projects Agency) Internet. Later, this long government type name was shortened to simply the Internet, and was made available to the general public.

The Internet is a collection of tens of thousands of computers that cover the globe. What's unique is that these computers are connected together via something called a "backbone" that uses a language that each computer on the network can understand. Each of these computers on the network has a unique address ...kind of a global street address. Like a street address, there is potentially more than one person living at that address. Let's take DREAMMS for Kids, Inc. as an example. Our Internet address is DREAMMS@AOL.COM. *DREAMMS* is the person or in this case the entity or organization that you wish to communicate with. *@AOL* indicates the street address of the computer connected to the backbone, and the *.COM.* indicates that AOL is a commercial organization. Other common suffixes are *.EDU* for Education, *.GOV* for Government, and *.ORG* for organization.

What Can I Use It For?

OK... So we know that they all have different street addresses, the net was originally created by the government... and they all speak the same language! How does this help me?

The Internet provides three basic capabilities: 1) You can communicate electronically over the "backbone" with over 15 million other people via electronic mail, 2) You can directly connect to anyone of tens of thousands of computers connected to the "backbone" and perform selected functions just as if you were there and 3) You can participate in "Discussions" and "Newsgroups" that focus on topics that deal with virtually any topic area you can imagine. This is where we will begin our look at how the Internet provides information on disabilities.



Newsgroups

Newsgroups are really a collection of world-wide groups that focus their discussion on a specific topic area. You might think of them as party lines where all the words have been recorded so you can read them at your leisure. You may have heard the following terms on the news or from other on-line users: *USENET: Net News, Internet News, News, and Newsgroups.* On America Online, these are all grouped under the common heading named *Newsgroup.*

OK, so who creates Newsgroups and who can participate? This is the best part! They are created by people just like you and me... and most are unmoderated, meaning that every message that you send will appear in the Newsgroup discussion without censorship. You can discuss any topic you wish, but be prepared for a response! You have to keep in mind that there are literally zillions (actually many millions) of users on the Internet. In a recent test DREAMMS posted a message in a handful of Newsgroups. We received well over 100 responses in the 3 days following the posting of a single message! And, responses continue to trickle in at a rate of about 10 per day.



Search

How do I find out what Newsgroups are out there? First, you have to access the Internet. To Access Internet Newsgroups from AOL, click on the Internet button from the Main Menu, and then click on the Newsgroups Icon. I'm going to get a little specific about America Online in explaining the access of Newsgroups. Of the national service providers, I feel right now that AOL leads the pack

Newsgroups



By Chet Hosmer, DREAMMS Technical Director

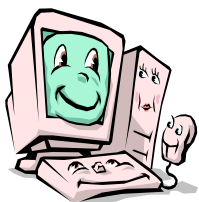
in both access to Internet services and the price that they charge. I do all my Internet access using it.

AOL provides a search feature that provides you a very effective way of finding, accessing, and using Newsgroups. They have a *Search All Newsgroups* button, that provides a way to enter a word or phrase to search on.

It then scans through all the Newsgroup names and displays all Newsgroups containing that word or phrase. At that point you can select one of the Newsgroups and either view a narrative description of that Newsgroup, or add it to your Newsgroup list. Wait a minute... what's a Newsgroup list? Well, it's a list of Newsgroups that you frequently visit, or access regularly. I described the search first since it's the easiest way to access the Newsgroups and create your own personalized list. Let's take an example: If I search for the word "disabled", I get three Newsgroups listed:

alt.education.disabled
su.org.disabled
ucb.students.disabled

Wait a minute! You said that the Internet addresses were in the form DREAMMS@AOL.COM? Yes, that's true, but these are Newsgroup *names* not the computer's world wide street address, so their format is slightly different. However, don't worry... Because of the search feature, once you've found a Newsgroup of interest... just click on *Add* and the Newsgroup will be added to your list. You can then access it very easily the next time!



Reading Newsgroups

Once we've searched for Newsgroups and added ones of interest to our list, the next step is to participate in them. America Online provides a convenient way to access our Newsgroups that has some unique features. By clicking on the Read My Newsgroups button, AOL automatically reads all the messages in our selected Newsgroups. It then displays the

number of messages contained within each Newsgroup that we *haven't* read. This gives us a quick summary of messages that we might want to read. By selecting a specific Newsgroup you can view the Subjects found within that group and the number of messages entered for that subject. At this point we can scroll through the messages, read a specific message, compose a response, and best of all create our own messages. As we read the messages, AOL automatically marks them read so next time we only see the unread messages.

Is there any way to communicate with the author of a message? Yes, AOL provides the ability to instantaneously send a private e-mail message to the author without anyone else being able to read it! That feature is not available in most other services!

Disability Related Newsgroups

So, which disability Newsgroups seem to be interesting? Well, of course those that are in your specific area of interest. Here also, are a few disability related Newsgroups to get you started.

alt.education.disabled	alt.education.research
alt.support.attn.deficit	bit.listserv.down-syn
k12.ed.special	misc.handicap
su.org.disabled	ri.k12.providers.tech
ucb.students.disabled	va-pen.edtech-plan

Costs

How much does it cost to access Newsgroups? Well of course that depends, although there is no fee to use the Internet itself. Let me give you some specific data on AOL. America Online charges a \$9.95 per month fee that provides you with 5 hours of connect time. After that they charge a flat rate of \$2.95 per hour. Be sure to keep track of your time, it can really add up when you're wandering around inside the groups.

Next Month

Next month, I'll take a look at other Internet services that give you access to the mountains of free resources and software. Give the Newsgroups a try and if you find a diamond in rough send me an e-mail message. You'll find me at DREAMMS@aol.com.



HOW DO I ACCESS THE DREAMMS FORUM ON BIZNET ??

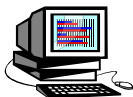
- * LEARN HOW TO USE YOUR MODEM AND COMMUNICATIONS PACKAGE
(You can call our HOTLINE for help ANYTIME you know .)
 - * CALL 813-971-0482 WITH YOUR MODEM
 - * INSTALL THE TELEFINDER SOFTWARE & USE IT TO CALL AGAIN
 - * SIGN ON AS A NEW USER FOLLOW THE SIMPLE DIRECTIONS
 - * SEND A NOTE TO THE SYSOP RE: DREAMMS AND SAY HOWDY
(He s a real friendly guy)
- and then
- * ACCESS ALL KINDS OF USEFUL INFORMATION (TEXT FILES, MESSAGES & SOFTWARE)

Switches...

- * Come in a Variety of Colors
- * Come in a Variety of Sizes
- * Can Be Activated By
 - Various Pressures
 - Tipping or Wobbling of the Switch
 - Squeezing or Pulling the Switch
 - Sound or an eye blink
 - Small Muscle Movements or Puffing or Blowing
- * Almost Always Require Interfaces
- * Can be Used for Environmental Control
- * Can be attached to toys, wheelchairs or beds

Prices

Switches range in price from about \$5.00 for a homemade switch (parts can be purchased from an electronics store) to up to \$400.00 for multi-purpose and multiple output switches. Remember that switches require software interfaces in order to be used with a computer. These interfaces can cost up to \$1,000.00!



Touchscreens

Touchscreens are panels that usually attach to the front of your monitor and allow direct input into the computer by touching on the screen. Touchscreens allow students to make selections, move objects, pull down menus, and draw graphics. These devices can only operate with software that has been specifically designed to accept the input from the screen in place of a mouse click or input from the keyboard. Touchscreens are particularly applicable for individuals with poor fine motor control, very young students, or students who have a difficult time understanding how the mouse or keyboard work.

Touchscreens are only available from a limited number of vendors. They attach to the front of your computer monitor

(usually with velcro), or are built into the computer itself, and plug into the back of the computer. They are available for Macintosh, Apple and PCs and compatibles. And, remember, they will only work with specific software titles, or need special “software drivers” to convert the input from the screen into mouse emulations.

Prices

Touchscreens range in price from \$500 to \$2,000.



Trackballs and Joysticks

Trackballs and joysticks come in a wide variety of shapes and sizes. A trackball functions basically like a mouse. The cursor (arrow on the screen) is moved by rotating the ball until the cursor is in the desired position on the screen. A button is then selected to transmit the position to the computer. Trackballs are appropriate for individuals who have better fine motor control than they do gross motor control, since fewer hand and arm movements are necessary. Most laptop computers have trackballs rather than mice.

Joysticks can also be used to provide input into a computer. They are generally “more fun” to use than a mouse or trackball, but have a more limited applicability. Some joysticks are designed to be operated with various parts of the body.

Joysticks and Trackballs are readily available from a host of vendors.

Prices

Trackballs are generally available from \$50 to \$200. Joysticks cost between \$50 and \$500.

Voice Recognition



Voice recognition systems provide for two separate functions within a program. They can be used to control computer functions

Not much space this month Just a very quick hello from all of us here in Clearwater! This *brings lots of exciting happenings at DREAMMS*. We're presenting at FATIC this week, *we're going to be on TV (OH MY..), and* we're on the verge of expanding *DIRECTIONS* to a bigger and better format! (Won't it be nice to have space again?!) We're very excited about our new Marketplace! The folks you will see here have products or services to offer that are especially for kids like ours! I hope you find something that will fill a need!

A Note from the Editor!

Marketplace

**** TOYS ON THE MOVE **** Fully adapted for switch use. Names they love * Talking Big Bird & Barney & Disney Mirrors. All easily set into action.

Switch Kids, Inc. 8507 Rupp Farm West Chester, OH 45069 513-860-5475 Phone or FAX

**** YOUR AD HERE **** Do you have a product or service that is appropriate for our readership? Won't you share it with us? Call DREAMMS at 813- 781-7711 to send for our marketplace packet!

I'd love to get some feedback from you all. How do you think we're doing? Are there things that you would like to see in *DIRECTIONS*? Can we offer a section that would help you out? Please let me know... either by phone, snail mail, e-mail (DREAMMS@aol.com) or on our DREAMMS Electronic Forum at 813-971-0482 !

and can be used as a means of dictation into a word processing program. In either case, these systems require training. The system needs to be trained to understand the user's voice, and needs to learn what to do on specific commands.

These systems are particularly useful for individuals who have little motor control, but are able to communicate. They are also useful as environmental control systems. Voice Recognition Systems are becoming very popular as the technology improves, and are available from a number of vendors.

Prices:

Control and Dictation products range in price from \$300 to \$10,000. Be sure to check if the system that you plan

to purchase will work with your computer and application.

Summary

Although this has been a very short overview of adaptive input devices, the sections above list the most popular devices that are used to access computers. These devices can be found in a wide variety of catalogs from numerous vendors throughout the country. The list found on Page 3 of this month's issue is certainly not an exhaustive one, but is a good representation of the vendors who offer adaptive computer products (both input and output) that are currently available. Contact these vendors directly for a catalog of their products.

Next Month Adaptive Output Devices

Home Delivery !

Wouldn't you like DIRECTIONS delivered directly to your home each month!

Mail back this coupon with your check, Money Order, or Purchase Order today!

<p>_____ Name</p> <p>_____ Address</p> <p>_____ Address</p> <p>_____ City, State, Zip</p>	<p><u>Annual Subscription Rates</u></p> <p>* \$9.95 Individual Subscription</p> <p><input type="checkbox"/> Payment Enclosed <input type="checkbox"/> Please Bill Me</p>
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Mail to: **DREAMMS for Kids, Inc. 2763 Tasha Drive Clearwater, FL 34621**

Tidbits...

Tidbits...

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Equipment Exchange Network

The Equipment Exchange Network was developed to help consumers buy, sell, loan, trade, or donate assistive technology. If you are interested in buying any equipment, or if you have equipment to sell, please contact Disability Information Access Line for Indiana (DIAL-IN) at (800) 437-7924 or (812) 855-9396. Both lines are voice and text telephone.

Upcoming Resource Guide

DREAMMS will be releasing a comprehensive Resource Guide in the very near future! This excellent source of information on special education software, hardware and adaptive device vendors will be available in paper form, and in a Hypercard Stack. Look for it in the next few months!

Watch for Us on Vision Cable -Channel 9

The DREAMMS organization will be featured in a spot on "Suncoast Magazine" on Vision Cable 9 in Pinellas County, FL this month! The focus is technology in special education, and what it can do for our students! Smile for the camera!!

Special Florida Conference

Catch the Vision, a statewide conference on April 20-23 at the Sheraton Sand Key in Clearwater Beach is being presented by the Family Network on Disabilities. (Nice weather here folks!!) The conference is shaping up to be a very informative gathering of nationally recognized keynote speakers, and will focus on disability related issues. Topic areas are: Family Support, Education, Inclusion, Healthcare, Empowerment for Teens, and Collaboration and Teaming. Contact FND at 813-595-1611 for registration information.



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Assistive Technology Solutions

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