

## Alternative Input: Assistive Technology For Young and/or New Switch Users

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This article includes a list of selected resources for switches, switch-related products, and switch accessible software. It is intended for use as a resource supplement to presentations on alternative computer assistive technology which include information about alternative inputs. This listing is not intended to be all inclusive of the assistive technology available in the categories listed below.

People who need to use an alternative input method, such as a switch, will often need a considerable period of time in which to develop the skills needed to use the switch successfully. Switches can control battery-operated learning aids, communication devices, power wheelchairs, computers and Electronic Aids to Daily Living (EADLs). Like all motor and cognitive skills these are best learned from an early age, with suitable activities and teaching strategies. Switches can be operated in different ways; hands, head, foot, etc. Factors to consider when choosing a switch include size, feel, color, mounting ability, and operating pressure and movement.

### Types of Switches

In her article "Switches," Lange (2001) describes a variety of switches in the following way:

#### Mechanical

- Plate - A flat surface that is depressed to activate the switch.
- Light Touch Plate - a flat surface that is depressed to activate the switch and requires less pressure than the plate switches. (e.g., Adaptation Pal Pads, Flexible; Don Johnston L.T.; Enabling Devices Saucer; Tash Membrane Plate; Whitmyer Bubble).
- Lever - These are bent in any direction to activate (e.g., Enabling Devices Ultimate; Wobble; Tash Leaf; Flex).
- Pneumatic - A change in air pressure activates the switch. Some are dual switches (Enabling Devices Sip n Puff, Grip, Plump and Puff; Tash Grasp; Whitmyer Airpad).
- Mercury - Tipping the switch allows a drop of mercury to make contact with and activate the switch. (Enabling Devices Tilt, Tash Tip).
- Other: (Enabling Devices Pinch, String, Roller).
- Dual Switches: House two switches in one package (Tash Rocker).



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- Switch Joysticks - Shaped like a joystick, these provide from one to five switch outputs (Tash Joystick with Pad, Mini Joystick with Push)
- Multiswitches - 1-5 switch outputs and can be used for power mobility access (Tash Penta, Star and Wafer).
- Wireless/Remote - mechanical switches that are wireless (Ablenet Airlink, Cordless Big Red; Enabling Devices Wireless Saucer Switch).

## Electronic

- Proximity (capacity switch) - activated by a body part coming within an adjustable range (ASL Adjustable Proximity; Tash Untouchable Buddy).
- Fiberoptic (visible light) - Breaking the beam of light activates the switch and is designed for very small movements (ASL Fiber Optic, Mini Fiber Optic).
- Infrared (invisible light, range up to 15") Breaking the beam of light activates the switch. Designed for larger movements (ASL Adjustable Beam; MSU Artificial Language Lab SCATIR; Enabling Devices).
- Movement Sensor; Whitmyer Infra-Red; Words + IST).
- Touch - The skin is conductive and completes the circuit to activate the switch (Adaptation Taction Pads; Equal Access Computer Technology; Minimal Motion; Words+; IST.)
- Sensor - Pick up electrical impulses from the muscle (small movements) which activate the switch. Requires careful placement and calibration. (Don Johnston Sensor).
- Photocell/Photoelectric (visible light, range up to 21 "). For larger movements (ASL Adjustable Photoelectric; Enabling Devices Photocell).
- Sound Activated -Volume of sound activates the switch (Enabling Devices; Voice Activated; Words+; IST).
- Piezo Electric Film (detects vibration). Activated by vibration, such as small movements and even the force of one's breath. (Adaptation Vibration; Enabling Devices Twitch, LifeBreath, Movement Sensor).
- U1traSonic (invisible light, range 6"-30") Breaking the beam of light activates the switch. Designed for larger movements.

## Switch Manufacturers

Ablenet - [www.ablenetinc.com](http://www.ablenetinc.com)

Adaptation - [www.adaptivation.com](http://www.adaptivation.com)

Adaptive Switch Labs ASL [www.asl-inc.com](http://www.asl-inc.com)

Artificial Language Laboratories, MSU - 517-353-5399 <http://www.msu.edu/~artlang/index.html>

Don Johnston - [www.donjohnston.com](http://www.donjohnston.com)

Enabling Devices - [www.enablingdevices.com](http://www.enablingdevices.com)

Tash - [www.tashinc.com](http://www.tashinc.com)

Whitmyer Biomechanix - [www.whitbio.com](http://www.whitbio.com)

Words+ - [www.words-plus.com](http://www.words-plus.com)



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## Switch Mounts

Positioning and mounting of the switch will depend on the user's physical and motor abilities. A position that will allow the user to operate the switch efficiently, with as little effort as possible should be the goal.

## Switch Mount Manufacturers

- Magic Arm - Enabling Devices and RJ Cooper
- Slim Armstrong - Ablenet and Don Johnston
- Mounting System Accessories for Ablenet mounts – Ablenet
- Universal Switch Mount - Ablenet and Don Johnston
- DaeSSy Stem System [www.daessy.com](http://www.daessy.com)
- Switch Mounting Accessories - Enabling Devices
- Mounting Parts - Tash, Int.
- Maxess Switch Tray and Switch Mounts - Inclusive TLC [www.inclusiveTLC.com](http://www.inclusiveTLC.com)

## Adjustable tables

- R.E.A.L Design - 1-800-696-7041
- Northport AdjusTable – [www.theadjustable.com](http://www.theadjustable.com)
- Wheelchair trays

## Switch Accessories

Switches cannot be plugged directly into the computer. An interface is needed that connects to the computer and passes on the instructions your software application is expecting. Make sure that you can set your interface to the required mouse click or keystroke required by the application.

- Computer switch interfaces
  - Orcca Switch Adapted Mouse – [www.orcca.com](http://www.orcca.com)
  - Switch Interface Pro - Don Johnston, Inc. [www.donjohnston.com](http://www.donjohnston.com)
  - Switch Interface Pro 5 (USB) – Don Johnston, Inc.
  - S.A.M. (Switch Adapted Mouse) Trackball - RJ Cooper [www.rjcooper.com](http://www.rjcooper.com)
  - Intellikeys – Intellitools [www.intellitools.com](http://www.intellitools.com)
  - Switch Click & USB Switch Click (interface & switch) - Tash, Int. [www.tashinc.com](http://www.tashinc.com)
  - SwitchHopper – RJ Cooper
  - USB Switch Interface – Crick [www.cricksoft.com](http://www.cricksoft.com)
  - USBKeys2 (detect software that is running and automatically configures Crick Switch Interface) – Crick software titles found at [www.switchindex.com](http://www.switchindex.com)
  - Quizworks Switch Interface – Quizworks [www.quizworks.com](http://www.quizworks.com)
- Battery Adapters – Ablenet; Tash, Int.; Enabling Devices
- Switch Latch and Timer – Ablenet; Tash, Int.; Enabling Devices



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**Switch Accessible Software** (all software listed has alternative access for students with disabilities with opportunities for making choices and some with access to curricular content.) Consider - cause/effect, switch timing and/or scanning, and age-appropriateness of contents. Listed by vendor – (vendors may have other software that is not listed in this handout)

- SoftTouch (all are MAC/WIN CD's) 1-877-763-8868 [www.funsoftware.com](http://www.funsoftware.com)
  - Switch Basics- Learn the basics of switch use from cause effect to scanning for choice making.
  - Old MacDonald's Farm Deluxe- 6 major activities with several options in each.
  - SoftTouch Favorites- 12 songs and graphics to choose from. Selections from preschool to teenager.
  - Teach Me to Talk- Learn nouns and sounds and choice making. Uses realistic pictures.
  - Monkeys Jumping on the Bed- Favorite Pre-school Song with Number and Color Activities.
  - Songs I Sing At Preschool- 12 Favorite Pre-school songs.
  - Puzzle Power – electronic puzzles from 2- 16 pieces
  - Teach Me Phonemics – programs target different sounds in specific locations in words.
  - My Own Bookshelf – build stories and create an electronic bookshelf for individual students
- Don Johnston, Inc. (all are MAC/WIN CD's and have built-in scanning) 800-999-4660 [www.donjohnston.com](http://www.donjohnston.com)
  - Ukandu Switches, Too! - early C/E software in language-rich context. Content geared to younger children. Teaches concepts of on/off and left/right. C/E activities add up to a complete story.
    - Forgetful and Friends
    - Humpty Dumpty and Friends
    - Eensy and Friends.
  - UKandu Little Books - MAC/WIN CD's (built-in scanning with options). For early and pre-readers. Simple, short, animated 4 page stories with 16 possible variations for each story. Stories can be printed to make little books.
    - A Day at Play - Features children's pastimes in rhyming format.
    - Out and About - Features Ukandu characters in simple adventures.
    - On a Green Bus -Three animated stories
  - Ukandu Interactive Reading Series - Word highlighting to focus on words and improve word recognition skills. Each has own learning materials with teacher activities, games, puzzles, worksheets, word walls and more.
    - Circletime Tales Deluxe - pre K-1
    - K.C. & Clyde and Fly Ball - K-3
    - Camp Frog Hollow - 2-4
  - Press-to-Play Series - Speedy, Zoo, Animals and Sports. Single-switch story scenes that develop computer input skills.
  - BuildAbility - Literacy-authoring tool creates stories and lessons. Create lessons for cause/effect, basic skills, vocabulary building, reading and curriculum knowledge.



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- Simon Spells (Mac only) – learn to spell words at 1-2 grade level
- Simon S.I.O. (Sounds It Out) – individual phonics instruction with plug and go switch access
- Start-to-Finish Books
- Intellitools - [www.intellitools.com](http://www.intellitools.com) Create and customize activities that can be accessed with one or two switches.
  - Intellipics Studio - multimedia with digitized speech
  - Click-It! - add hot spots and scanning to any software.
  - Intellitalk II- talking word processor and authoring program to help students develop literacy skills.
  - Number Concepts 1(K-2) & 2 (3-5)- accessible math software.
  - MathPad(K-2) - accessible electronic worksheets.
  - Intellimathics – problem solving tool with on-screen manipulatives.
  - SwitchIt Suite(K-1) - 4 programs teach basic skills in motivating switch activities.
  - Instant Access to Living Books CD - adaptations for 16 Living Books accessible with Intellikeys or switch using Intellikeys as switch interface.
- Crick Software - [www.cricksoft.com](http://www.cricksoft.com)
  - Clicker 4 - writing and multimedia tool. It is a talking word processor supported by a Clicker Grid (on-screen keyboard) of 1-100 cells. Each cell can hold a letter, word, phrase or picture. When the cell is clicked it enters the contents into the word processor. It has integrated access including single switch.
  - All My Words - literacy activities for young children and for those who need help with reading and writing. Activities operate at word, sentence, or text level. Activities are automatically created as soon as you enter text or use 100 texts provided by program itself. It has built-in scanning.
- Creative Communicating - [www.creative-comm.com](http://www.creative-comm.com). Language rich software based on familiar daily activities. For young children. Software contains supplementary teaching aids such as overlays, props, books and strategies. Age appropriate software is available for older students needing simple content.
  - Storytime Series
  - Songbook Series
  - Making Language Visible
  - RAPS CD
  - Older Children CD
- RJ Cooper - [www.rjcooper.com](http://www.rjcooper.com) - varied features designed for motivating students who need strong visual and auditory features.
  - Early and Advanced Switch Games
  - Point to Pictures
  - Children's Switch Progressions
- Lynjan Solutions - [www.lynjan.com](http://www.lynjan.com). Created with Intellitools, software that is language rich and comes with props. Teaches basic concepts. Categories of software according to props: Large board activities, story board activities, glove activities, holidays.



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- Inclusive TLC - [www.inclusiveTLC.com](http://www.inclusiveTLC.com)
  - SwitchIt!Maker - cause/effect authoring program
  - Chooselt!Maker - scanning authoring program
- Judy Lynn Software (PC only) - [www.castle.net/~judyllynn](http://www.castle.net/~judyllynn)
  - Look and Listen – basic cause/effect and visual tracking program customizable with your own graphics, songs and prompts.
  - Cause & Effect Cinema
  - Match It – cause/effect and scanning
  - Cause & Effect Factory
- Laureate Learning Systems – [www.LaureateLearning.com](http://www.LaureateLearning.com)
  - Creature Games – train cause/effect and turn-taking
  - Exploring Early Vocabulary Series – uses fun, exploratory scenes.
- Simtech – [www.SimtechSoftware.com](http://www.SimtechSoftware.com) - animated cause/effect and learning to scan programs.
  - New Frog and Fly
  - Everybody Has Feet
  - Spider Maze
  - Scan and Match
  - Switch Picasso Series
  - Switch Puzzles

### Software With Two Switch Step Scanning

- Crick Software
  - Clicker 4
- Don Johnston
  - Press to Play – one switch to move scan; dwell to select
- Inclusive TLC
  - Chooselt! Maker
  - Kaleidoscope
  - Others
- Intellitools Software
  - Including any homemade or commercial software made with Intellipics Studio or Intellitalk
- Linda Burkhart
  - Two Switches to Success
- Mayer-Johnson
  - Speaking Dynamically Pro
  - Writing With Symbols
- Simtech
  - Spider Maze
  - Frog and Fly



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- Everybody Has Feet
- SoftTouch
  - Concepts on the Move
  - I Know American History
  - Songs I Sing at Preschool

**Electronic Aids to Daily Living** - formerly known as ECU's (Environmental Control Units) Listed by manufacturer -

- Enabling Devices
  - Jumbo TV and VCR Remotes
  - Cordless Remote Units for TV, VCR and Cable
  - Cordless Unit for up to 8 appliances
  - Single Switch TV Control Unit
  - Single Switch TV, VCR, and Cable Control Unit
- Ablenet
  - PowerLink 3 Control Link
  - Airlink Cordless Switch for PowerLink 3
  - Cordless Big Red Switch with Cordless Receiver and small Appliance Receiver
  - TV and VCR Remote
  - Slide Projector Control Adapter
- Tash, Int.
  - Ultrasound Receivers
    - Ultra 4 Power Module - small electrical
    - Ultra I - switch operated devices
  - Ultrasound Transmitters
    - Ultra I transmitter- 1 appliance
    - Ultra 4L - large buttons
    - Ultra 4S - small buttons
    - Scanning Ultra 4
    - Ultra 2T Transmitter - 2 single switches

**Mounting Manufacturers**

Often the devices that are being accessed must be mounted to wheelchairs, or other places within the student's environment. Consider transportation, safety, compatibility with other wheelchair features, interference with power wheelchair driving. Discuss mounting at time of wheelchair evaluation and planning.

- CJT Enterprises [www.cjt-yes.com](http://www.cjt-yes.com)
  - Profiler Mounting System - universal mounting system for variety of tubing.
  - Blue Flash - collapsible pushable cart for portable computer or AAC.
  - Profiler Light - for switches and lightweight devices.
  - Portable table mounts.



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- Adjustable Floor Stand.
- Comm Belt
- Tag-a-long - tray for walker
- Scoot-a-Bout - mobile floor level unit.
- DaeSSy(Daedulus Technologies, Inc. [www.daessy.com](http://www.daessy.com))
  - Rigid Mount- precisely positioned
  - Rear Folding Mount - to rear of wheelchair
  - Folding Mount - to side of wheelchair
  - Locking Swing Away Mount
  - Desk Mount
- DJ Technical Sales - [www.djtech.com](http://www.djtech.com)
  - CS-25 Switch Mount
  - CS-2 Series - designed for heavier devices and laptops
  - CS-20 - lightweight mount for small devices
- Tash, Int.- Mounting Solutions
- Whitmyer Biomechanix [www.whitbio.com](http://www.whitbio.com)- Switch Mounting Hardware

#### Reference

Lange, Michelle. (2001). Switches. O.T. Practice. Vo1.6 (3), pp. 18-20.



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