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ABSTRACT

Described are toy modifications which enable handicapped individuals to operate battery-powered toys. A battery interrupter is explained as a device which fits between the batteries in a toy and provides the ability to have a separate on-off switch which can be custom designed to fit a handicapped user's needs. Construction and use of three types of battery interrupters are described: for regular cylindrical batteries (AA, C, and D cells), for nine-volt transistor radio-type batteries, and for use with cassette tape recorders and other devices having a "remote" jack. Construction of a wobble stick toy control switch is also illustrated. Skill development activities are suggested to provide training for switch use. Sources are listed for on-off modules, timer modules, environmental control modules, combined time and on-off devices, and battery interrupter cables. A "Trace Quick Sheet" lists books, pamphlets, catalogs, and associations and organizations that provide information regarding adapted toys and toy modifications to allow single-switch control. (JDD)

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TOY MODIFICATION NOTE

BUILD IT YOURSELF BATTERY INTERRUPTER

Permits on/off control of battery operated toys
without modification of the toys themselves

Gregg C. Vanderheiden
Trace R&D Center
University of Wisconsin-Madison

Description

The Trace Battery Interrupter is a simple device which fits between the batteries in a toy and provides the ability to have a separate control (on-off) switch which can be custom designed to fit a handicapped user's needs.

The interrupter can be inserted and removed at any time, by anybody, in a matter of seconds. No modifications to the toy itself are needed. When the interrupter is removed from the toy, the toy will be exactly as it was before the interrupter was inserted.

This Application Note provides information on the construction and use of three types of battery interrupters:

Type 1 - For regular cylindrical batteries (AA, C, and D cells)

Type 2 - for 9 volt transistor radio type batteries (with snaps)

Type 3 - for use with cassette tape recorders and other devices having a "Remote" jack

Also provided is a brief note on how battery interruptors work.

NOTE: A 28-page booklet, Guidelines for Adapting Battery Operated Toys for the Handicapped, is available from

The California Avenue School
Jayne Higgins
215 W. California Avenue
Vista, CA 92083 USA

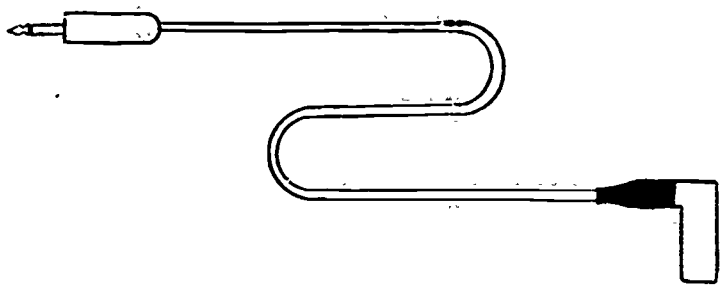
Cost: $3.00 U.S.
$4.00 (U.S. currency) Canada, Mexico, and overseas

This booklet covers procedures and materials for making a pillow switch, touch panel switch, and an on-off switch.

How to Use the Type 1 Interrupter

(for toys that use regular AA, C, and Dbatteries)

The Type 1 battery interrupter (for cylindrical batteries - AA, C, and D cells) looks like this:



plug to connect to switch for handicapped user

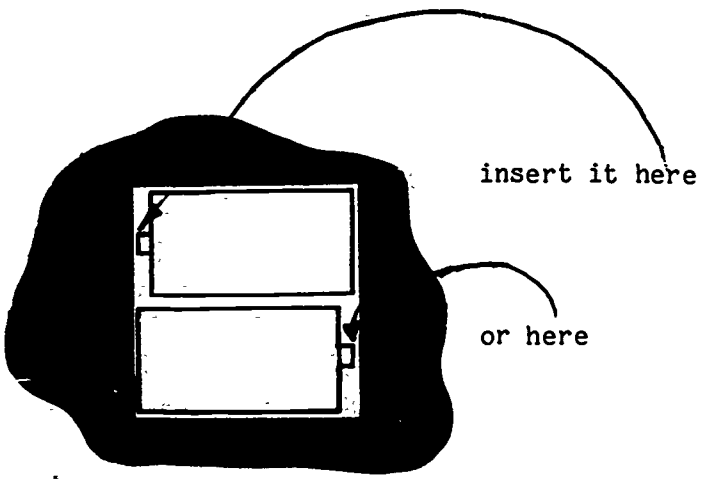
wire

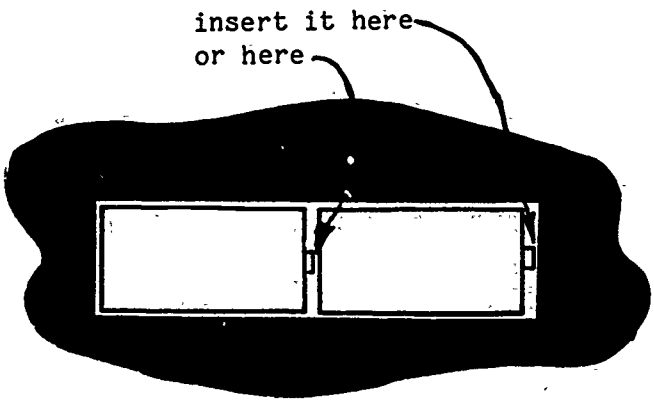
actual interrupter

To use the interrupter, simply:

1) Insert it between any two batteries or between the first battery and the metal tab in the battery compartment of the toy.

2) Close the battery compartment door to help keep it in place.

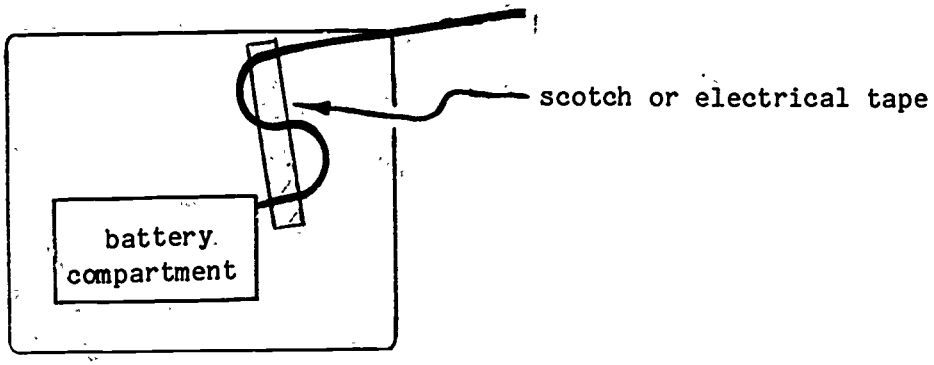




3) If the toy has an on/off switch, put it in the "ON" position.

4) Plug the other end of the interruptor cable into a switch (such as a Zygo Tread Switch) and try it.

Once the Interrupter is in place, avoid pulling on the wire as you may pull it out of position. Some people tape the wire to the back or bottom of the toy to provide a strain relief in case the cord is pulled by accident.



If the interruptor slips out, the toy will just operate as it normally did. Just open the battery door and put the interruptor back in place.

You may pull the interruptor out at any time, and the toy will be exactly as it was before you inserted the Interruptor.

NOTES

- You may have to make a small notch on some toys (on the battery compartment door) for the wire to be able to come out of the battery compartment.

- With the interrupter in place, the toy will not operate unless both the regular on/off switch and the new custom switch are closed or ON.

- If the switch you use is a momentary switch (i.e., it only stays closed while you have your hand on it, like the Zygo switches) the toy will run only while you are holding the switch closed, and will stop when you release the switch.

- If you want the toy to turn on when you hit the switch once and turn off when you hit it again, you must either

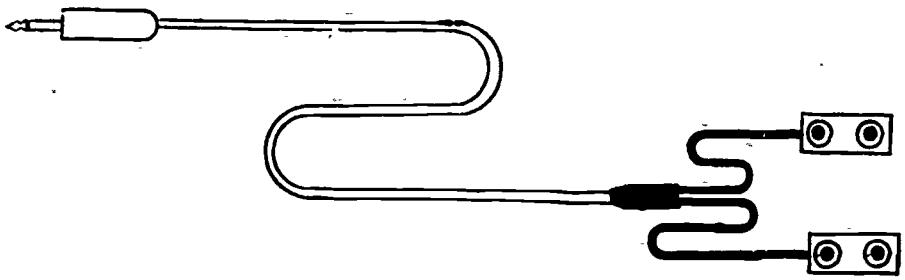
1) get a bistable switch (e.g., a toggle switch or a push on - push off switch)

or 2) get a Trace Multibox (or equivalent), which can make any momentary swtich (including Zygo's) act like a hit on/hit off switch. (The Trace Multibox is available from Prentke Romich.) In addition to allowing on/off control, the Trace Multibox also allows timed control; e.g., the toy runs for a preset time of 2 seconds to 2 minutes each time the switch is hit). The Multibox also provides switch filtering for users who hit the switch multiple times when trying to hit it once.

How to Use the Type 2 Interruptor

(for 9 volt "transistor" batteries)

The Type 2 interruptor is designed for use with transistor radios and other devices which use a 9 volt battery with snaps. The type 2 interruptor looks like:



To use the interruptor,

1) Open the device and take the 9 volt battery out.

2) Put one pair of snaps of the interruptor on te battery, and one pair on the snaps in the device. (It doesn't matter which snaps on the interrupter cable are used for what.)

3) Close the battery door on the toy/radio/etc. with the battery left outside. (It is okay to leave the battery inside the device if it will fit, but it almost never will.)

4) Turn the device on.

5) Connect the interruptor cable to a switch and try it.

NOTES

- You may have to make a small notch on some toys (on the battery compartment door) for the wire to be able to come out of the battery compartment.

- With the interrupter in place, the toy will not operate unless both the regular on/off switch and the new custom switch are closed or ON.

- If the switch you use is a momentary switch (i.e., it only stays closed while you have your hand on it, like the Zygo switches) the toy will run only while you are holding the switch closed, and will stop when you release the switch.

- If you want the toy to turn on when you hit the switch once and turn off when you hit it again, you must either

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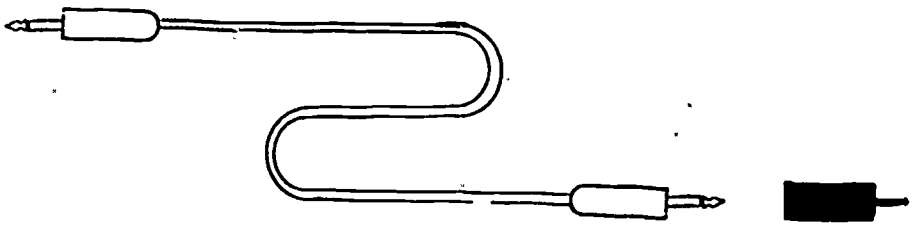
How to Use the Type 3 Interruptor

(for tape recorders or other devices
which have a "Remote" jack)

Some devices, such as cassette tape recorders, have a "Remote" jack on their side. For these devices, a very simple interrupter can be used.

The interruptor is made of two parts which can be secured from any Radio Shack store.



Standard audio cable with 1/8" miniature phone jacks on each end

1/8" miniature phone plug to subminiature phone plug adaptor

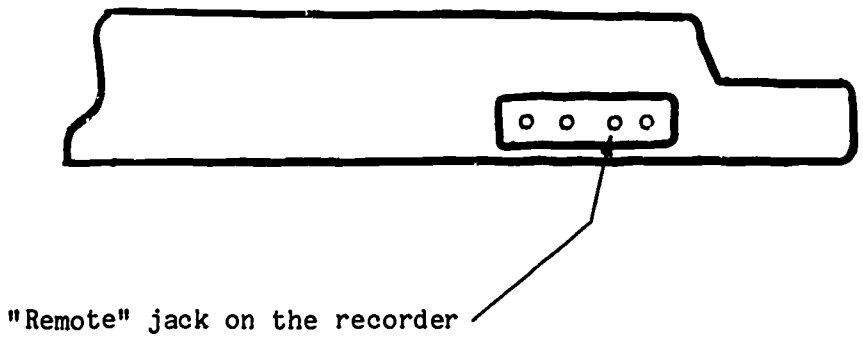
To use the Type 3 interruptor, simply

1) Plug the cable into the adaptor.

2) Plug the adaptor into the "Remote" jack on the recorder.

3) Turn the recorder on.

4) Plug the other end of the interrupter cable to a switch and try it.



How to Make a Type 1 Interface

Materials Needed

- 1" x 1/2" piece of double-sided 1/32" thick printed circuit board
- 1/8" miniature phone plug*
- 3 to 6 feet of speaker wire*
- 1" shrink wrap tubing (not essential)

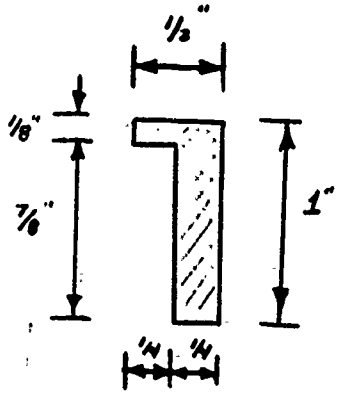
* (You may want to use earphone wire and plug - see notes below).

Tools Needed

- Hacksaw or coping saw
- Soldering iron
- Solder (rosin core)
- Electrical tape

Step 1 - Cut the double-sided printed circuit board to the following dimensions:

Sufficient PC board to make 4 interruptors is attached to this report if ordered from the Trace Reprint Service.



Step 2 - Coat both sides with solder by heating them up and rubbing them with the soldering iron tip while applying solder. Use solder sparingly.

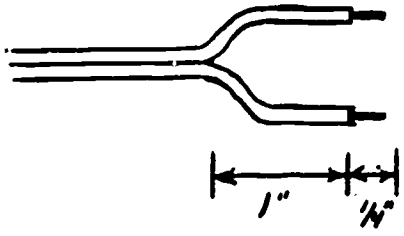
Step 3 - Prepare one end of the speaker wire cable by:

a) splitting the wires back 1"

b) stripping 1/4"

c) "tinning" the wires by heating them and applying a bit of solder to "wet" them.

d) letting them cool.



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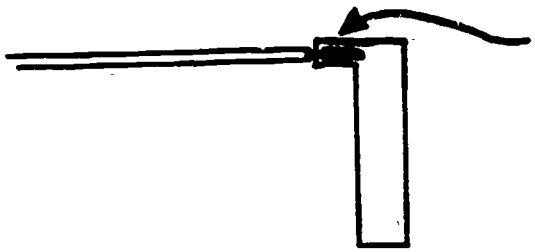
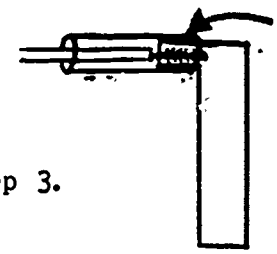
Step 4 - Slip a piece of shrink wrap over the wires if you have some. (Do not shrink it yet!)

Step 5 - Now solder one wire to each side of the interruptor you made in step 1.



Step 6 - After the interruptor has cooled, push the heat shrink over the small blade, as shown below, and heat the shrink wrap carefully. It will shrink down and strengthen the joint.



If you do not have shrink wrap, put a couple turns of electrical tape on to accomplish the same function.

Step 7 - Prepare the other end of the "speaker wire" cable - see Step 3.

Step 8 - Solder the miniature phone connector on by:

a) inserting the wires through the phone plug cap as shown.

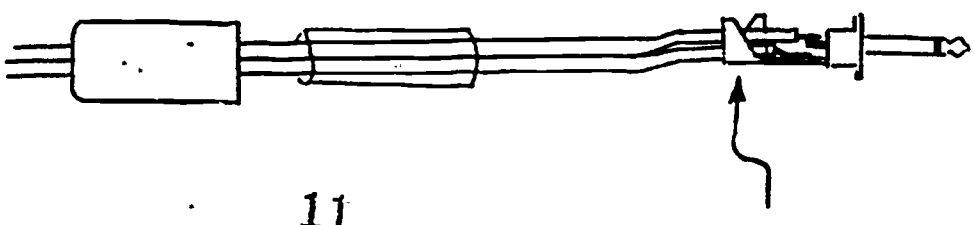
b) slipping a piece of shrink wrap over the wire (if you have some)

c) soldering the wire ends as shown.

d) slipping the shrink wrap over the joints and shrink it (or tape them)

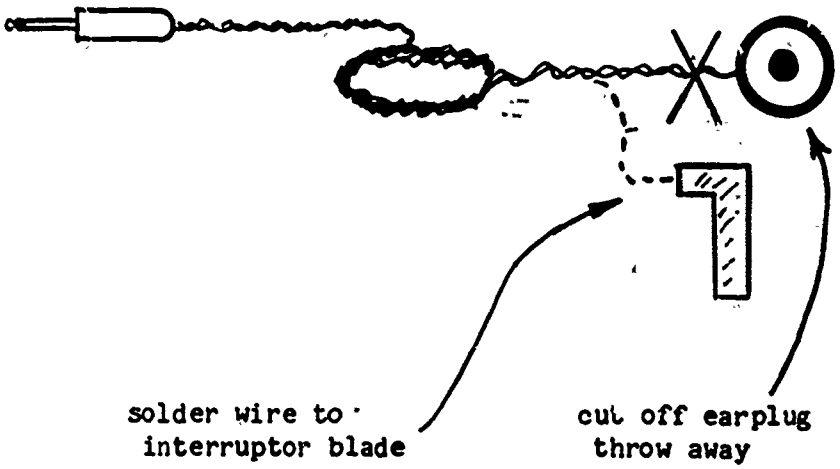
e) clamping the strain relief ears of the phone plug around the wires

f) screw the cap on.



NOTE:

It is often easier and only slightly more expensive (if at all) to buy a cheap earphone with a 1/8" miniature connector on it, and then cut the earphone off and throw it away. You then have your cable with the 1/8" plug already attached. You need only solder it to your interrupter blade and you are done. Earphone cables are also more flexible than speaker wire, and are nicer for that reason. (Be sure that the earphone has a 1/8" phone plug and not the subminiature plug - most have the 1/8" plug.)



How to Make a Type 2 Interruptor

(for 9V battery Devices)

Materials

- two 9v battery clips
- 4-6 ft of "speaker wire"*
- 1/8" miniature phone plug*

*You may want to use a cheap earphone instead - see note at end.

Tools

- soldering iron
- wire stripper
- solder (rosin core only)
- electrical tape (or shrink wrap tubing

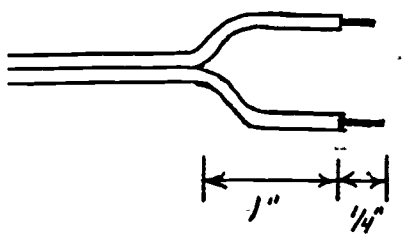
Step 1 - Prepare one end of the speaker wire cable by:

a) splitting the wires back 1"

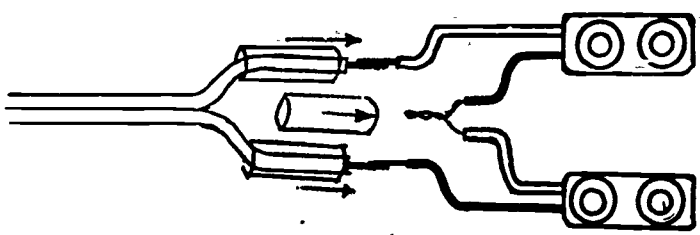
b) stripping 1/4"

c) "tinning" the wires by heating them and applying a bit of solder to "wet" them.

d) letting them cool.



Step 2 - Make connections as shown below, twisting the wires together and soldering. (If you use shrink wrap, be sure to put it over the wires before you make the solder joints - you won't be able to afterwards.)



Step 3 - Wrap all connections with electrical tape or shrink wrap tubing.

Step 4 - Wrap all connections together to make a neat package.

Step 5 - Prepare the other end of the "speaker wire" cable - see Step 1.

Step 6 - Solder the miniature phone connector on by:

a) inserting the wires through the phone plug cap as shown.

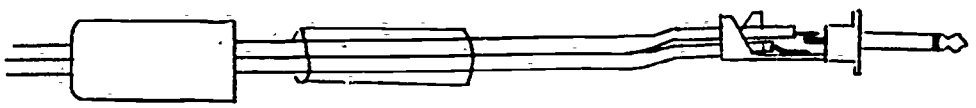
b) slipping a piece of shrink wrap over the wire (if you have some)

c) soldering the wire ends as shown.

d) slipping the shrink wrap over the joints and shrink it (or tape them)

e) clamping the strain relief ears of the phone plug around the wires

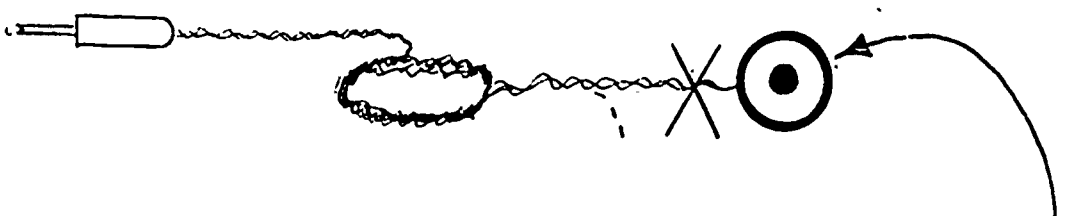
f) screw the cap on.



strain relief ears

NOTE:

It is often easier and only slightly more expensive (if at all) to buy a cheap earphone with a 1/8" miniature connector on it, and then cut the earphone off and throw it away. You then have your cable with the 1/8" plug already attached. You need only solder it to your interrupter blade and you are done. Earphone cables are also more flexible than speaker wire, and are nicer for that reason. (Be sure that the earphone has a 1/8" phone plug and not the subminiature plug - most have the 1/8" plug.)



solder wire to interruptor

cut off earplug throw away

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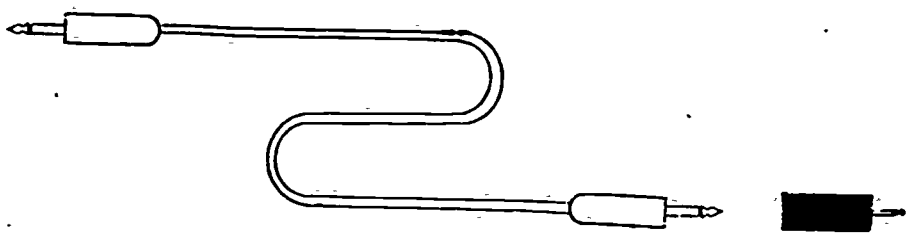
How to Make a Type 3 Interruptor

(for cassette recorders and other devices with a "Remote" jack)

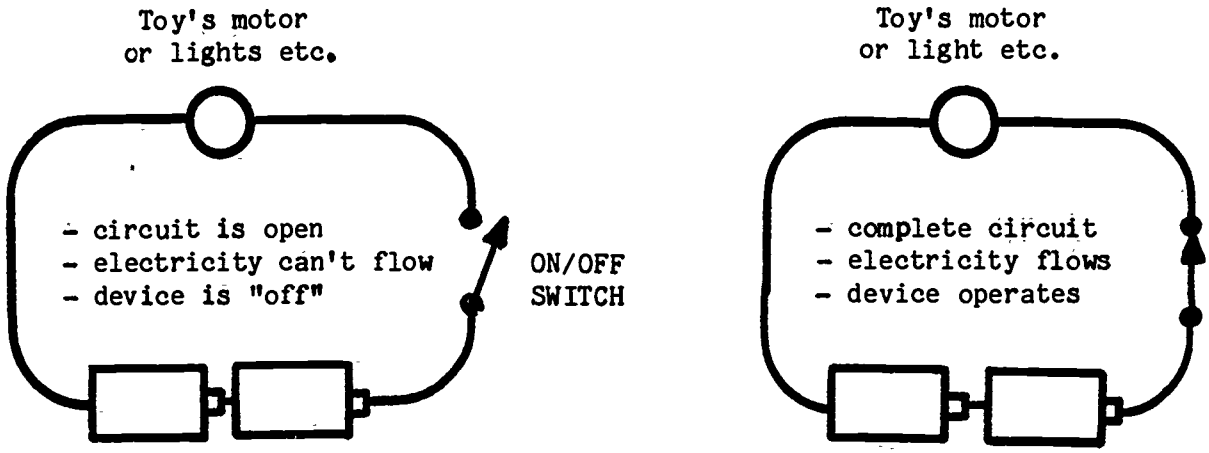
Materials	Tools
o audio cable with 1/8" phone plug on each end (Radio Shack or Zygo) o 1/8" to subminiature phone plug adaptor (Radio Shack).	o none

Step 1 - Plug the two components together.



How They Work

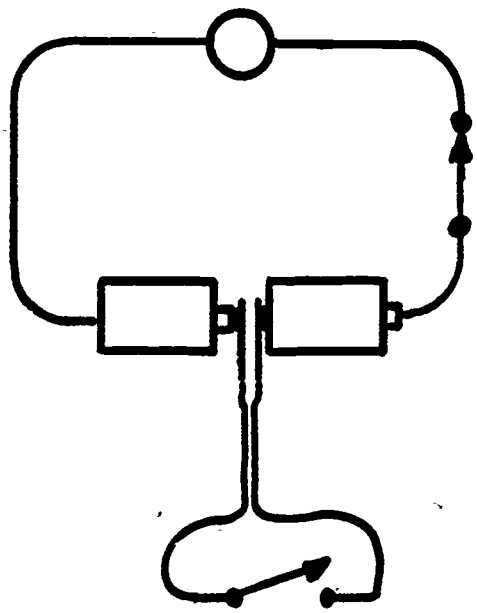
For a toy to work, it needs a complete "circuit" or "path" for the electricity to flow.



NORMAL TOY WITH ITS ON/OFF SWITCH OPEN (off)

NORMAL TOY WITH ITS ON/OFF SWITCH CLOSED (on)

The battery interrupter works by breaking the circuit and allowing you to put a second on/off switch into the circuit.



Now both the normal on/off switch and the user's switch must be closed before there will be a complete circuit and the electricity can flow to make the machine operate.

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WOBBLE STICK TOY CONTROL SWITCH

Ben Brown, Ed.D.
Cinda Bottorf
Gregg Vanderehiden

Revised 1988

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on Communication, Control, and Computer
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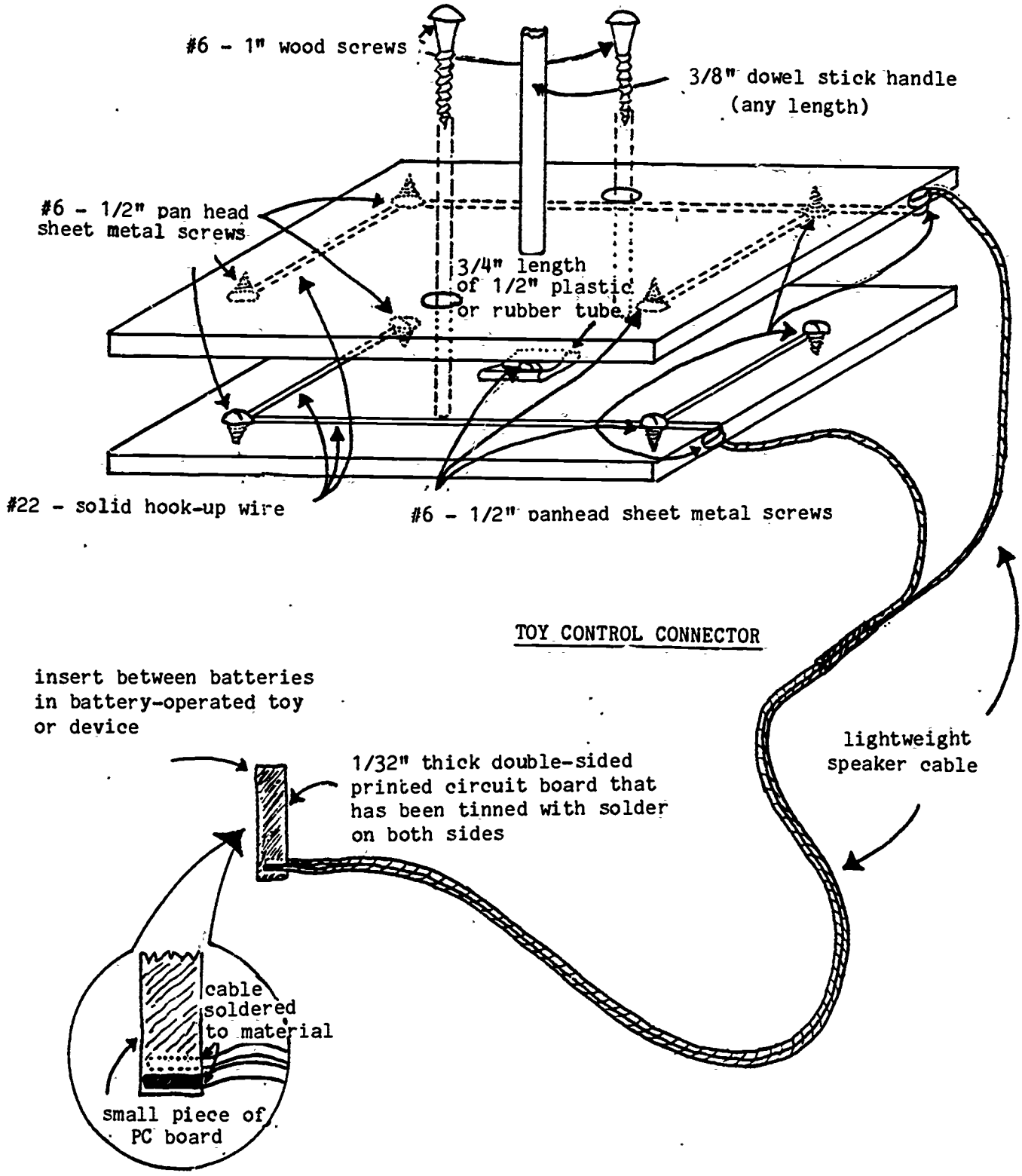
University of Wisconsin-Madison

Waisman Center/1500 Highland Avenue Madison, Wisconsin 53705-2280 (608)262-6966 TDD: (608)263-5408

WOBBLE STICK TOY CONTROL SWITCH



TOY CONTROL SWITCH AND CONNECTOR

MATERIALS

1) 2 pieces 1/2 inch plywood 4 1/4" x 7" (top to bottom)

2) 3/8 inch diameter dowel stick for handle (any length)

3) 11 (quantity) #6 1/2" panhead sheet metal screws

4) 2 (quantity) #6 1 inch roundhead wood screws

5) 3/4 inch length of 1/2 inch diameter plastic or rubber tube

6) 15 inches of #22 AWG solid hook-up wire

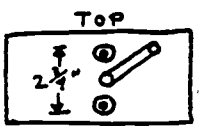
7) 24 inches of lightweight speaker cable

8) small piece of 1/32" thick (1/16" thick is okay) double sided PC board material approximately 3/8" x 1"

9) small amount of solder

Procedure

1) Cut out and sand plywood top and bottom

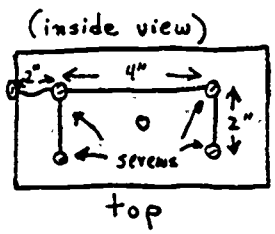


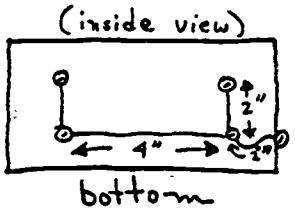
2) Drill 2 3/16" holes in top 2 3/4" apart (counter-sink holes 1/4")

3) Drill 3/8" hole in center of top and attach dowel stick

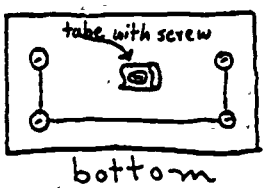
4) Cut #22 hook-up wire into 6 2-inch lengths and 2 4-inch lengths

5) Attach wires to plywood top and bottom with 1/2" sheet metal screws:





6) Attach 3/4" length of plastic or rubber tube to center of bottom with 1/2" sheet metal screw



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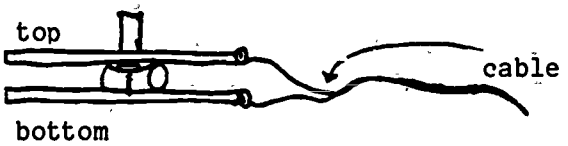
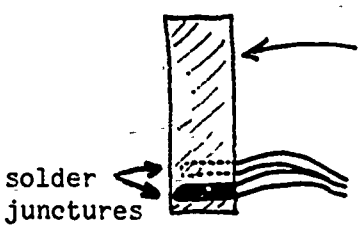
7) Assemble top and bottom by screwing #6 1" wood screws into 2 3/16" holes drilled in top (NOTE: top and bottom should be approximately 1/4" apart; separated by plastic or rubber tube; top should be loose and wobbly)

8) Attach lightweight speaker cable to top and bottom. One strand of wire connects to screw on outside edge of top while other strand attaches to screw on bottom:



9) Attach two strands of speaker cable to toy control connector (battery insert) by soldering wires to either side of insulated material. (NOTE: wires must not make contact with each other at solder junctures - tin the battery insert by coating both sides but not the edges with solder.)



drawings and text by Ben Brown 6/80

SWITCH USE: SKILL DEVELOPMENT ACTIVITIES

Learning to use a switch often requires skill development. Skill development activities can often be cone in a game format. Some possible ideas for activities would include:

Use of tape loops to provide voice output during specific activities. For example if the switch user is out of the wheelchair, is watching TV in the wheelchair, is in sidelying, etc. a switch could be positioned so that he/she could activate it. A tape loop inserted in the recorder would have the message "please come over here". During a group activity that is a favorite of children, a tape loop could be used with the message "its my turn". In any application, an appropriate line drawing would be attached to the face of the switch or placed next to the switch within the user's range of vision. By using two tape recorders, each with the appropriate picture symbol attached, voice output can be provided for choice making activities. For example, the symbol of TV could be accompanied by a tape loop saying "I want to watch TV" and a line drawing of a record player, radio, etc. could have the message "I want music". The possible applications utilizing the switch in this way are endless. In certain teaching situations a cassette could be used rather than continually investing or making tape loops. The tape loops are handy for times when the switch user is left more independently so that there is not a concern about rewinding and being at the appropriate point. One final note regarding the use of tape recording is that the recorded voice should be done by someone of approximately the switch user's age.

Other positive experiences utilizing the switch will be cause and effect activities in which the switch will control objects in the environment. It has been found that battery operated toys quickly lose their appeal and are not that reinforcing to children. The ability to control things such as a fan in hot weather, music, or a light tend to be more positive experiences. The most positive use of a switch, however, is in causing something to happen that will elicit attention and reaction from adults and/or other children. We tend to overlook this too often - the fact that for a child who is severely physically involved there are very few ways of eliciting this kind of reaction and attention independently. These kinds of play situations can be set up, for example, if a battery operated car is activated and knocks over blocks. The reaction of the play partner will be the reinforcing consequence as much or more than the blocks being knocked over or the car going. In the same way, if use of a computer is introduced, it will be the reaction of others who are there for training and support as the individual operates the computer rather than something inherent in a program which is being run. The following type of equipment has proven to be useful in providing functional switch control experiences.

Skill Development Activities

Contact vendors or Trace Center for further information. Prices do not include shipping, etc.

1. On-off-module - Changes switch on/off function from momentary to latching. This will allow control of items without having to maintain switch closure. Sources include:

Steven Kanor, Ph.D., Inc. 8 Main Street Hastings-on Hudson, NY 10706 (917) 478-0960	Push-On-Push-Off Module $42.00
TASH, Inc. 70 Gibson Drive, Unit 12 Markham, Ontario L3R 4C2 (916) 475-2212	Switch Latch, #4388 $99.00

2. Timer module - allows a switch activation to turn something on for a predetermined amount of time, and requires another switch closure to reactivate following that length of time. Sources include:

Steven Kanor (address above)	Time Module $42.00
Arroyo and Associates 88-45 79th Avenue Glendale, NY 11385 (718) 849-9306	Delay Timer DT-1 $150.00

3. Environmental control modules - allow you to plug in electrical appliances into the module which is plugged into the wall, thereby allowing control of electrical appliances utilizing the switch. Sources include:

Steven Kanor (address above)	Environmental Control $65.00
Arroyo (address above)	Mini-Environmental Control MECU - 1 $160.00

4. Combined Time and On-Off Devices - There are three devices which combine these functions.

Prentke Romich Company 1022 Heyl Road Wooster, OH 44691 (216) 262-1984	Training Aid 2 $380.00

This is the new improved version of the Trace Multibox. Features latching on/off or preset time of activation for both battery-operated and electrical appliances. Two separate channels allow control of 2 devices.

TASH (Address above)	Dual Switch Latch and Timer, #4389 $180.00

This allows latching on/off activation,
- use of momentary activation which turns off after a preset time,
- a switch delay to vary the length of time the switch must be held closed before activation. Two channels allow separate control of 2 devices (battery operated).

ABLENET 360 Hoover Street, N.E. Minneapolis, MN 55413 (612) 331-5958	Ablenet Control System $105.00 ($80.00 control unit, $25.00 switch)

The control unit permits control of any 2 toys or electrical appliances - directly or with a 2-90 second timer.

5. Battery interrupter cables - allow switch control of any battery run appliance or toy without having to modify with a jack. In addition to this reprint, other resources and sources include:

How-to -

- Burkhardt, Linda J. (1980) More Homemade Battery Powered Toys and Educational Devices (see address on Trace Center Adaptive Toys Quick Sheet)

- Higgins, Jayne (1982) Guidelines for Adaptive Toys (see address on Trace Center Adaptive Toys Quick Sheet)

Commercial Sources -

- Don Johnston Developmental Equipment 900 Winnetka Terrace Lake Zurick, IL 60047 (917) 438-3476	Battery Adapter, #720
- Prentke-Romich (address above)	Battery Interface, #B1-1 $28.00
- TASH (address above)	Toy Cable, #4378 (AA,C) #4379(D) $8.80
- ABLENET (address above)	Battery Device Adapter $4.50 (has thin, flexible copper ends to facilitate use)

Tape loops such as those described above can be made or can be purchased at stores such as Radio Shack. A Trace Quick Sheet regarding adaptive toys and toy modification is included with this information.

Trace Center

Trace Research and Development Center
on Communication, Control & Computer Access for Handicapped Individuals
Waisman Center
University of Wisconsin-Madison

1500 Highland Avenue • Madison, Wisconsin 53705-2280 • (608)262-6966 TDD: (608)263-5408

Trace Quick Sheets
January, 1988

Adaptive Toys and Toy Modifications

This list contains information regarding adapted toys and toy modifications to allow single switch control. Included are books, pamphlets, catalogs, companies and organizations. No recommendations or endorsements are implied by inclusion on this list. Contact each resource for more specific and up-to-date information.

Books and Pamphlets

Switching Mechanisms for Special Needs -- A Project Manual
William M. Lynn
$6.50
National Clearinghouse of Rehabilitation Materials
115 Old USDA Building
Oklahoma State University
Stillwater, OK 74078
405/624-7650
This project manual first explains how switches work by presenting basic electronics principles, and then provides step-by-step instructions for building several types of switches and accessories.

Toys and Games for Educationally Handicapped Children
1969
Buist, Charlotte & Schulman, Jayne
Thomas Publishing
P.O. Box 19265
2600 South 1st Street
Springfield, IL 62794-9265
217/789-8980

Hmmemade Battery Powered Toys and Educational Devices for Severely Handicapped Children
1980
Linda J. Burkhardt
8503 Rhode Island Avenue
College Park, MD 20740
301/345-9152

More Homemade Battery Devices for Severely Handicapped Children with Suggested Activities
1982
Linda J. Burkhardt
8503 Rhode Island Avenue
College Park, MD 20740
301/345-9152

Using Computers and Speech Synthesizers to Facilitate Communication Interaction
Linda J. Burkhardt
8503 Rhode Island Avenue
College Park, MD 20740
301/345-9152

Homemade Switches and Toy Adaptations for Early Training with Nonspeaking Persons
1984
William B. Coker, Jr.
Cincinnati Center for Developmental Disabilities
3300 Elland Avenue
Cincinnati, OH 45229
513/559-4688
LSIISS 15, 1, pp.32-35. (Reprints)

Technology for Independent Living Sourcebook
Alexandra Enders (ed.)
1984
RESNA
1101 Connecticut Avenue
Suite 700
Washington, DC 20036
202/857-1199
This book contains a comprehensive listing of associations, toy libraries in each state, and manufacturers and distributors of special toys.

Guidelines for Adapting Toys for the Physically Handicapped
Jayne Higgins
1982
California Avenue School
215 West California Avenue
Vista, CA

Touch Toys and How to Make Them
1984
$4.00 + .69 for postage
Touch Toys
P.O. Box 2224
Rockville, MD 20852
This is an instruction book on how to make over 100 toys for the blind. Checks payable to: Touch Toys.

Toy Modification Note: Build-it-Yourself-Battery-Insert
G.C. Vanderheiden
1982 (1986, revised)
Trace Center
1500 Highland Avenue
S-151 Waisman Center
Madison, WI 53705
608/262-6966
Describes construction and operation of battery inserts to allow control of battery operated devices by handicapped individuals without requiring modification of the toys themselves. Full diagrams and operating instructions included.

From Toys to Computers: Access for the Physically Disabled Child
C. Wright and M. Nomura
Revised 1987
$20.00
Christine Wright
P.O. Box 700242
San Jose, CA 95170

Compu-Robot
$34.95
Comp Tech Systems Design
P.O. Box 516
Hastings, MN 55033
612/437-1350
An audio-controlled robot. Easy-to-use, programmable, remembers up to 48 commands, 3 speed, right and left turn, u-turn, pause. Uses 4 AA-batteries.

Catalogs

Arroyo & Associates
88-45 79th Avenue
Glendale, NY 11385
718/849-9306

"Special Populations Catalog"
Flaghouse, Inc.
150 N. MacQuesten Parkway
Mt. Vernon, NY 10550
914/699-1900

Kaye's Kids
1010 E. Pettigrew Street
Durham, NC 27701-4299
919/683-1051

Handicapped Children's Technological Services, Inc.
P.O. Box 7
Foster, RI 02825
401/397-7666

A Declaration of Independence
Adaptive Aids
P.O. Box 57640
3865 East 34th Street
Suite 109
Tucson, AZ 85713
602/881-6715

Toys for Special Children
Steven Kanor, Ph.D
8 Main Street
Hastings on Hudson, NY 10706
914/478-0960

Zygo Industries, Inc.
P.O. Box 1008
Portland, OR 97297-1008
503/297-1724

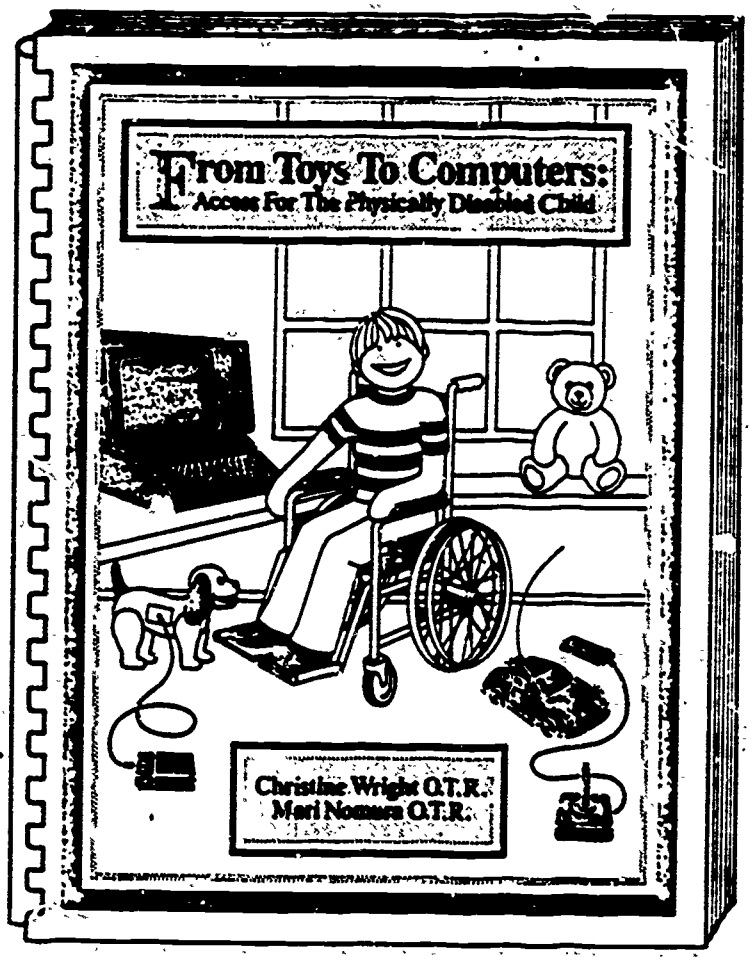
The Able Child
1761 Stewart Avenue
New Hyde Park, NY 11040

Associations and Organizations

LEKOTEK
2100 Ridge
Evanston, IL 60204
312/328-0001
A non-profit resource center with specialized play materials, therapy equipment, and books for loan.

USA Toy Library Association (USA-TLA)
Judith Iacuzzi, Exec. Director
104 Wilmot Road
Suite 201
Deerfield, IL 60115
312/940-8800
Toy library, information on adaptive toys, newsletter.

NEW BOOK



New opportunities for learning.

Until recently, it was frustrating, if not impossible, for many physically disabled children to interact with toys and the microcomputer, both tools for learning. Now, however, there are many adaptations and devices which make it possible for even the most severely physically disabled child to interact with these important tools. Determining how this can be done requires special skills and a broad base of knowledge. That is what "From Toys to Computers..." is all about.

Written by occupational therapists, it's the first illustrated guidebook to the adaptations, devices and techniques a physically disabled child can use to access toys and computers.

The complete "how-to" guidebook.

- How to select appropriate toys.
- How to adapt battery operated toys.
- How to make switches, where to find them.
- How to determine switch control.
- How to establish a toy lending library.
- Photos of commercially available toys selected for ease of manipulation and adaptability.
- Proper positioning for enhancing motor control.
- An introduction to the microcomputer.
- Illustrated options for accessing the computer.
- Evaluating for computer access.
- Ideas for establishing a microcomputer center for physically disabled children.
- References, resources, and more.

Published By Christine Wright & Mari Nomura

YES! Please send me a copy of your new book.

Please send me _____ copies of *From Toys to Computers: Access for the Physically Disabled Child*, @ just $17.00 per copy (includes Fourth Class postage and handling). For First Class or outside the U.S. mainland add $3.00. California residents add 6½% sales tax ($1.11).

NAME: _____

ADDRESS: _____

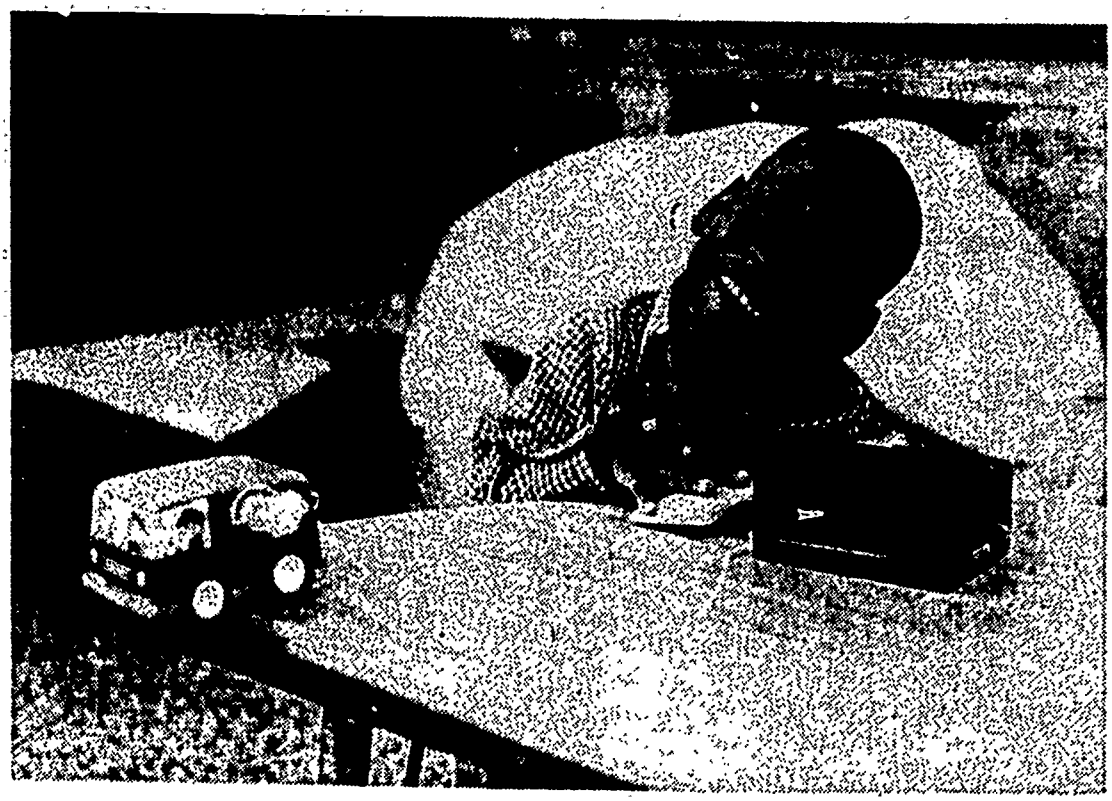
CITY/STATE: _____ ZIP _____

Send check or money order to:
Christine Wright
P.O. Box 700242
San Jose, CA 95170

Total enclosed: _____

Allow 4-6 weeks for delivery.

HOMEMADE BATTERY POWERED TOYS AND EDUCATIONAL DEVICES FOR SEVERELY HANDICAPPED CHILDREN



LINDA J. BURKHART

NEW BOOK!

MORE HOMEMADE BATTERY DEVICES FOR SEVERELY HANDICAPPED CHILDREN WITH SUGGESTED ACTIVITIES

Linda J. Burkhart

FEATURES:

* 19 NEW SWITCHES - EASY TO MAKE - WITH COMPLETE DIRECTIONS AND CLEAR ILLUSTRATIONS
* DIRECTIONS FOR MAKING TOY ADAPTERS
* SIMPLE COMMUNICATION DEVICES - WITH DIRECTIONS FOR CONSTRUCTION
* PROGRAM SUGGESTIONS IN THE AREAS OF:

  COGNITIVE DEVELOPMENT
  COMMUNICATION DEVELOPMENT
  MOTOR DEVELOPMENT
  SELF-HELP & SOCIAL DEVELOPMENT

"Simplified Technology for the Severely Handicapped"

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8503 Rhode Island Ave.
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MORE HOMEMADE BATTERY DEVICES FOR SEVERELY HANDICAPPED CHILDREN WITH SUGGESTED ACTIVITIES BY Linda J. Burkhart

This book is a continuation of the first book: Homemade Battery Powered Toys and Educational Devices for Severely Handicapped Children. It is more than twice as long and is full of new ideas and devices for the severely handicapped. All of the devices are described with complete directions for construction. No special skills are needed and most materials and tools can be found around the house or purchased inexpensively at local stores. This book also includes an extensive chapter on suggested activities for incorporating these devices into many aspects of the child's program. The areas covered include: cognitive, communication, motor, self-help and social skills. The activities list suggested goals, materials, and procedures.

The book has a wide range of applications and should be useful to parents, teachers, specialists of vision, hearing, speech, physical and occupational therapists, and other friends of the handicapped.

TABLE OF CONTENTS - Partial Listing

TO ORDER:

SEND CHECK, MONEY ORDER, OR PURCHASE ORDER FOR $12.50 TO THE ADDRESS BELOW. THIS PRICE INCLUDES FOURTH CLASS POSTAGE AND HANDLING. FOR FIRST CLASS POSTAGE OR U.P.S DELIVERY, PLEASE ADD $1.50.

LINDA J. BURKHART
8503 Rhode Island Ave.
College Park, MD 20740

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