

Don Lancaster's

# RESOURCE BIN

number sixty nine

## An update on robotic resources.

Our usual reminder here that the *Resource Bin* is now a two-way column. You can get tech help, consultant referrals and off-the-wall networking on nearly any electronic, *tinaja* questing, personal publishing, money machine, or computer topic by calling me at (520) 428-4073 weekdays 8-5 Mountain Standard Time.

I'm now in the process of setting up my new *Guru's Lair* web site you will find at (where else?) [www.tinaja.com](http://www.tinaja.com). This is the place you go for instant tech answers. Among the many files in our library, you will find complete reprint sets for all of the *Resource Bin* and other columns. Plus a brand new [Synergetics Consultant's Network](#).

You will get the best results if you have both [Netscape Gold](#) and [Acrobat Reader 3.0](#) installed.

### Robotics Resources Update

It was way on back in RESBN16.PDF that we last looked at robotics. Since then, there's been some really exciting new developments. Most especially involving PIC's and PostScript. What I thought I'd do is once again go over the best recent robotic resources I've found. Next month, I will show you how trivially easy it is to get your low end PIC robot to speak PostScript.

If you just can't wait, some exciting hints of what is now possible appear in [POSTFLUT.PDF](#) on [www.tinaja.com](http://www.tinaja.com).

### news:comp.robotics.misc

These days, the latest and best info often comes from the web. As with many fields, it is unthinkable to try doing *anything* robotic without first becoming web literate.

[comp.robotics.misc](#) appears to be the leading newsgroup. They seem to be a medium activity group, now running several dozen posts per day. Most of which are well thought out and do receive intelligent responses. Unlike a lot of groups, their troll and flame

levels seem to be low to moderate.

There is a related [comp.robotics](#) and [comp.robotics.research](#).

[comp.robotics.misc](#) also publishes a FAQ, or a *Frequently Asked Questions* file. One source for their hundreds of well done FAQ tutorial pages is found at [www.faqlib.com/robotics](http://www.faqlib.com/robotics)

Be sure to check out [www.faqlib.com](http://www.faqlib.com) in general. They've got thousands of other FAQ pages for a wide variety of targeted newsgroups.

Couldn't find much in the way of online robotics ezines or newsletters. Let me know if you find any.

Two useful web searching tools are *Alta Vista* and *Hotbot*. I have links to these and dozens of other utilities on my [Web Resources page](#).

My own robotics page can be found at [www.tinaja.com/flut01.html](http://www.tinaja.com/flut01.html)

### The Robot Store

Your leading robot store today is apparently *The Robot Store*. Who are a division of *Mondotronics*. You'll find all sorts of books, kits, projects, and raw materials here. Even classic big screen robot videos. They're also into *muscle wires* which will expand upon electrical heating.

Web site is [www.robotstore.com](http://www.robotstore.com)

Sadly, a general robotic muscle has yet to be developed. One that is fast,

**NEXT MONTH: Don shows us how to use PostScript for PIC flutterwumpers.**

powerful, and efficient. An older and seldom explored approach is to use lower pressure air sent to bladders, bellows, or to rolling diaphragms. Surplus auto TCS or SCS valves make ideal low cost controllers, powered by an aquarium pump.

More in [HACK04.PDF](#). A source for valves is [www.tinaja.com/barg01.html](http://www.tinaja.com/barg01.html).

### American Science & Surplus

The center of the robotic universe for years was *JerryCo*, the legendary Chicago surplus store. Mecca, even. These days, they are called *American Science and Surplus*. Their free catalogs are a must have. A big competitor is *Edmund Scientific*, who also offer free catalogs on request.

You will find wonderful regional surplus stores all across the country. Several of which are jammed full of unbelievable robotic bargains. Typical examples are Silicon Valley's *Wierd Stuff Warehouse*, or *Apache Reclamation & Salvage* down in Phoenix.

*Bentley Auctioneers* is your pipeline to everything that Las Alamos labs throws away.

The url is [www.bentleysauction.com](http://www.bentleysauction.com)

There's also a collection of national direct mail surplus firms. My favorite is *C&H Sales* for steppers and motors and servos. Free catalogs. There's also *Burden's*, *Northern*, *Servo Sales*, *Groban Supply*, *Surplus Sales NE*, *Herbach and Rademan*, and *Roberts Hydraulics*. Plus good old *Fair Radio Sales*.

The primary government surplus web site is <http://131.87.1.51/>

### Small Parts

The best place I've found to get small parts is *Small Parts*. These folks stock all varieties of metals, plastics, tools, tubing, and fasteners. They also custom cut and gladly sell to anyone in small quantities. Free catalogs.

Old line mechanical parts suppliers include such companies as *Stock Drive Products*, *PIC Design*, and *Winfred M. Berg*. Being aerospace nurtured, these outfits tend to be very expensive.

A fine source for everything your hardware store has never heard of is *McMaster Carr* supply. Whose thick catalog lists just about every tool and every material and every fastener you could possibly need.

Complementing them is *Grainger* who resell everything electrical from motors to pumps to controls to lamps to wiring to whatever.

Your two leading freebie industry shoppers for new mechanical stuff are *Industrial Product Bulletin* and *New Equipment Digest*. The latter offers lots of free sample products.

Advertisers in *Model Railroader* are also superb sources for smaller metal and plastic stock. *R/C Modeler* is also useful. Most model servos are easily adapted to robotics.

Surplus mechanical bargains often appear in *Industrial Market Place*. But note that all the advertisers here are strictly high volume and strongly fax oriented. Hand holding or technical support is unheard of.

### Robotic Clubs

Robot clubs do seem to be rather popular these days. Typically, they will be associated with a community college, have monthly meetings, and annual contests. The contests might be goal specific, such as a firefighting robot or a basketball gobbling one. Or even a destruction derby. Most have newsletters of varying quality.

Both *comp.robotics.misc* and *Robot Store* maintain good lists of the higher profile clubs. I've included some of these in our resource sidebar.

There are also quite a few robotic related professional associations. The FAQ lists many of note. Besides the "usual suspects" like IEEE or ASME, a few examples of particular interest would appear to be the *Association for Robotics in Harzardous Environments*, that *Association for Unmanned Vehicle Systems*, the *International Service Robot Association*, *Utility Robot Users Group*, and the *Robotic Industries Association*.

### Books

There's scads of books on robots. Start with the selection in the *Robot Store* catalog. Four of their choices are Gordon McComb's *A Robot Builder's Bonanza and Gadgets Goldmine*; or *Mobile Robots and Navigating Mobile Robots* by MIT's Jones and Flynn.

Then check [www.amazon.com](http://www.amazon.com) for a few thousand more titles.

### Some Magazines

Using the word "robot" in a special interest publication title has long been the guaranteed kiss of death for ad revenue. Useful shirtsleeve pubs such as the *Robot Practitioner* are long gone. *Nuts & Volts* is clearly one leader in

hobby robotic publication, giving you fine columns, hands-on projects, and bunches of supplier advertisers.

Other places where low end robotic resources are likely to show up are *Electronics Now*, *Circuit Cellar*, and in *Popular Electronics*. Related concepts may also appear in *Home Automator* or *Home Power* as well.

All have their own web sites.

Your best industrial robotic design info usually can be found in *Machine Design* or in *Design News* magazines. Obviously useful are such mags as *Sensors, Measurement & Control*, *Power Transmission Design* or *Motion*. While less obvious, I've found *Appliance*, the *Appliance New Product Digest*, and the *Appliance Manufacturer* handy.

Especially for motors.

Also check *Automotive Industries* and *ITS World*. The latter is short for *Integrated Transportation Systems*.

Let's briefly review a few of those "real" robot publications...

*Autonomous Robots*, a journal about self-sufficient robots. From Kluwer at \$328 per year.

*IEEE Journal of Robotic Automation*, Reviews the theory and applications in robot dynamics and control. \$124.

*IEEE Robotics & Automation*, is on prototyping, demos and evaluation of robotic animation.

*International Journal of Robotics and Animation*, includes modeling, design, simulations, dynamics, control, and sensors. From Acta Press at \$148.

*The International Journal of Robotics Research*, on various aspects of robotic technology. MIT Press at \$82.

*The Journal of Intelligent & Robotic Systems*, a forum for fields in which intelligent systems play a significant role. From Kluwer at \$493.

*Journal of Robotic Systems*, has case studies on automation and robotics design. From Wiley at \$996 per year.

*Laboratory Robotics and Automation*, covering robots for analytical, clinical, synthetic, and environmental labs. Bimonthly from Wiley at \$356.

*NSRA News*, a newsletter on robots for health care, security, space, and home use. From that National Service Robot Association.

*Robotica*, an international forum on robotics and automation for industry, education, and ongoing research. \$119 from Cambridge Press.

## new from DON LANCASTER

### ACTIVE FILTER COOKBOOK

The sixteenth (!) printing of Don's bible on analog op-amp lowpass, bandpass, and highpass active filters. De-mystified instant designs. **\$28.50**

### CMOS AND TTL COOKBOOKS

Millions of copies in print worldwide. THE two books for digital integrated circuit fundamentals. About as hands-on as you can get. **\$28.50** each.

### INCREDIBLE SECRET MONEY MACHINE II

Updated 2nd edition of Don's classic on setting up your own technical or craft venture. **\$18.50**

### LANCASTER CLASSICS LIBRARY

Don's best early stuff at a bargain price. Includes the CMOS Cookbook, The TTL Cookbook, Active Filter Cookbook, PostScript video, Case Against Patents, Incredible Secret Money Machine II, and Hardware Hacker II reprints. **\$119.50**

### LOTS OF OTHER GOODIES

Tech Musings V or VI	\$24.50
Ask the Guru I or II or III	\$24.50
Hardware Hacker II, III or IV	\$24.50
Micro Cookbook I	\$19.50
PostScript Beginner Stuff	\$29.50
PostScript Show and Tell	\$29.50
Intro to PostScript Video	\$29.50
PostScript Reference II	\$34.50
PostScript Tutorial/Cookbook	\$22.50
PostScript by Example	\$32.50
Understanding PS Programming	\$29.50
PostScript: A Visual Approach	\$22.50
PostScript Program Design	\$24.50
Thinking in PostScript	\$22.50
LaserWriter Reference	\$19.50
Type 1 Font Format	\$16.50
Acrobat Reference	\$24.50
Whole works (all PostScript)	\$380.00
Technical Insider Secrets	FREE

### POSTSCRIPT SECRETS

A Book/Disk combination crammed full of free fonts, insider resources, utilities, publications, workarounds, fontgrabbing, more. For most any PostScript printer. Mac or PC format. **\$29.50**

### BOOK-ON-DEMAND PUB KIT

Ongoing details on Book-on-demand publishing, a new method of producing books only when and as ordered. Reprints, sources, samples. **\$39.50**

### THE CASE AGAINST PATENTS

For most individuals, patents are virtually certain to result in a net loss of sanity, energy, time, and money. This reprint set shows you Don's tested and proven real-world alternatives. **28.50**

### BLATANT OPPORTUNIST I

The reprints from all Don's Midnight Engineering columns. Includes a broad range of real world, proven coverage on small scale technical startup ventures. Stuff you can use right now. **\$24.50**

### RESOURCE BIN I

A complete collection of all Don's Nuts & Volts columns to date, including a new index and his master names and numbers list. **\$24.50**

### FREE SAMPLES

Check Don's Guru's Lair at <http://www.tinaja.com> for interactive catalogs and online samples of Don's unique products. Searchable reprints and reference resources, too. Tech help, hot links to cool sites, consultants. email: [don@tinaja.com](mailto:don@tinaja.com)

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## SOME CURRENT ROBOTICS RESOURCES

<b>American Sci &amp; Surp</b> 3605 Howard St Skokie IL 60076 (708) 982-0870	<b>Burdens Surplus Center</b> PO Box 82209 Lincoln NE 68501 (800) 488-3407	<b>Grainger</b> 2738 Fullton St Chicago IL 60612 (312) 638-0536	<b>Model Railroader</b> 21027 Crossroads Cir Waukesha WI 53187 (414) 796-8776	<b>Portland Area Robotic Soc</b> 821 SW 14th Troutdale OR 97060 (503) 666-5907	<b>Rockies Robotics Group</b> 13702 E Lehigh Ave Unit E Aurora CO 80014 (303) 680-9324
<b>Apache Reclamation</b> 313 West Apache Phoenix AZ 85003 (602) 254-0613	<b>C&amp;H Sales</b> PO Box 5356 Pasadena CA 91107 (800) 325-9465	<b>Groban Supply Co</b> 9300 S Drexel Chicago IL 60619 (773) 374-6900	<b>Motion Magazine</b> Box 6430 Orange CA 92613 (714) 974-0200	<b>Power Transmission Design</b> 1100 Superior Ave Cleveland OH 44114 (216) 696-7648	<b>San Fran Robotics Soc</b> PO Box 1205 Danville CA 94526 (707) 973-2748
<b>Appliance</b> 1110 Jorie Blvd CS 9019 Oak Brook IL 60522 (708) 990-3484	<b>Circuit Cellar Ink</b> 4 Park St #20 Vernon CT 06066 (203) 875-2751	<b>IEEE</b> 445 Hoes Ln Piscataway NJ 08855 (800) 678-IEEE	<b>Nashua Robot Bldr Club</b> 133-A Haines St Nashua NH 03060 (603) 595-5953	<b>Radio Control Modeler</b> Box 487 Sierra Madre CA 91024 (800) 523-1736	<b>Seattle Robotics Soc</b> PO Box 665 Mill Creek WA 98012 (206) 483-0447
<b>Appliance Manufacturer</b> 29100 Aurora Rd #200 Solon OH 44139 (216) 349-3060	<b>Connecticut Robotics Soc</b> 190 Mohegan Drive West Hartford CT 06117 (860) 233-2379	<b>Industrial Market Place</b> 7842 N Lincoln Ave Skokie IL 60077 (800) 323-1818	<b>New Equipment Digest</b> 1100 Superior Ave Cleveland OH 44114 (216) 696-7000	<b>Roberts Electric</b> 311 N Morgan St Chicago IL 60607 (312) 829-1365	<b>Sensors</b> 174 Concord St Peterborough NH 03458 (603) 924-9631
<b>Assn Rob Haz Enviro</b> 900 Victors Way Ann Arbor MI 48106 (313) 994-6088	<b>Comp Robotics Soc Houston</b> 116 E Edgebrook #603 Houston TX 77034 (713) 946-2732	<b>Industrial Products Bulletin</b> PO Box 650 Morris Plains NJ 07950 (201) 292-5100	<b>Northern Hydraulics</b> PO Box 1499 Burnsville MN 55337 (800) 533-5545	<b>The Robot Group</b> PO Box 164334 Austin TX 78716 (512) 288-9135	<b>Small Parts</b> PO Box 4650 Miami Lakes FL 33014 (305) 557-8222
<b>Assn Unmanned Veh Sys</b> 1735 N Lynn St Ste 950 Arlington VA 22209 (703) 524-6646	<b>Dallas Personal Robotics</b> 5112 Hardaway Circle The Colony TX 75056 (972) 495-3821	<b>Intl Service Robot Assn</b> 900 victors Way Ann Arbor MI 48106 (313) 994-6088	<b>New Mexico Robot Grp</b> MSD434, LANL Los Alamos NM 87545 (505) 662-4175	<b>The Robot Store</b> 524 San Anselmo Ave #107 San Anselmo CA 94960 (800) 374-5764	<b>Stock Drive Products</b> 2101 Jerico Turnpike New Hyde Park NY 11040 (516) 328-0200
<b>Atlanta Hobby Robot Club</b> PO Box 2050 Stone Mountain GA 30086 (404) 972-7082	<b>Design News</b> 8773 S Ridgline Blvd Highlands Ranch CO 80126 (303) 470-4000	<b>Marlin P Jones</b> Box 12685 Lake Park FL 33403 (407) 848-8236	<b>Oxbridge Media Finder</b> 150 5th Ave #202 New York NY 10011 (212) 741-0231	<b>Robotic Industries Assn</b> 900 Victors Way Ann Arbor MI 48106 (313) 994-6088	<b>Surplus Sales Nebraska</b> 1502 Jones Street Omaha NE 68102 (402) 346-4750
<b>Automotive Industries</b> PO Box 2056 Radnor PA 19080 (215) 964-4876	<b>Edmund Scientific</b> 101 E Gloucester Pike Barrington NJ 08007 (609) 573-6250	<b>Machine Design</b> 1100 Superior Ave Cleveland OH 44144 (216) 696-7000	<b>Palo Alto Robotics</b> 561 Hyannis Dr Sunnyvale CA 94087 (408) 245-9652	<b>Robotics Club of Maryland</b> University of Maryland College Park MD 20742 steveck@Glue.umd.edu	<b>Triangle Amat Robotics</b> PO Box 17523 Raleigh NC 27619 (919) 782-8703
<b>Bentley Auctioneers</b> 3801 Academy Pkwy North NE Albuquerque NM 87109 (505) 344-1812	<b>Electronics Now</b> 500-B Bi-County Blvd Farmingdale NY 11735 (516) 293-3000	<b>McMaster-Carr</b> Box 54960 Los Angeles CA 90054 (213) 692-5911	<b>PIC Design</b> Benson Road Middlebury CT 06762 (203) 758-8272	<b>Robotics Soc of America</b> PO Box 1205 Danville CA 94526 (415) 550-0588	<b>Utility Robot Users</b> 80 Park Plaza Newark NJ 07101 (201) 430-6646
<b>Winfred M Berg</b> 511 Ocean Ave E Rockaway NY 11518 (516) 599-5010	<b>Fair Radio Sales</b> PO Box 1105 Lima OH 45802 (419) 227-6573	<b>Measurement &amp; Control</b> 2994 W Liberty Ave Pittsburgh PA 15216 (412) 343-9666	<b>Popular Electronics</b> 500-B Bi-County Blvd Farmingdale NY 11735 (516) 293-3000	<b>Robotics Soc of So Cal</b> PO Box 26044 Santa Ana CA 92799 (909) 389-9243	<b>Wierd Stuff Warehouse</b> 384 W Caribbean Dr Sunnyvale CA 94089 (408) 743-5650

**Robomatrix Reporter**, robotic abstracts and indexes from Elsevier.

**Robot Explorer**, innovative research related to university projects. From *Appropriate Solutions* at \$14.95.

**Robotics**, free newsletter from SPIE, that international society for optical engineering. Free with membership.

**Robotics and Autonomous Systems**, a journal on fundamentals of robotics. From Elsevier at \$874 per year.

**Robotics and Computer Integrated Manufacturing** has original papers on theoretical, experimental, and applied robotics. Elsevier at \$420.

**Robotics Today**, new developments in industrial robot technology. \$60 per year from *SME*, also known as the Society of Manufacturing Engineers.

**Robot Times**, a newsletter from the Robotics Industries Association.

**Robotics World**, a monthly magazine from Douglas publications.

Obviously, you might beat some of these prices by seeking the titles out online or in a large tech library.

By the way, the best way these days to tune yourself into publications is with the *Oxbridge Media Finder* you'll find at [www.mediafinder.com](http://www.mediafinder.com) You can get more on these titles by searching for "robot" or "robotic".

### This Month's Contests

For our contest this month, just tell me about any robotic resource I don't already know about. Or, reveal to me a robotic newsletter or ezine. Or your "secret" regional surplus source.

There should be a largish pile of my new *Incredible Secret Money Machine II* books going to the dozen or so better entries, plus an all-expense-paid (FOB Thatcher, AZ) *tinaja quest* for two that will go to the very best of all.

Send all your *written* entries to me here at *Synergetics*, rather than to *Nuts & Volts* editorial.

You can get custom robotic help with my new *InfoPack* service.

Let's hear from you. ♦

*Microcomputer pioneer and guru Don Lancaster is the author of 33 books and countless tech articles. Don maintains his no-charge US tech helpline found at (520) 428-4073, besides offering all of his own books, reprints, and consulting services. Don also offers a free catalog full of his unique products and resource secrets. The best calling times are 8-5 on weekdays, Mountain Standard Time.*

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