

DECEMBER 1996 ISSUE OF THE DPRG NEWSLETTER

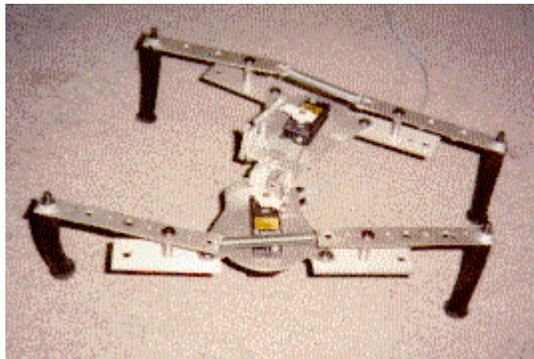


Wow what a wild month!!! Things are really rolling for DPRG (just look at this newsletter if you don't believe me)!!! I hope everyone is enjoying this as much as I am. I like getting all the email about robotics. It's really a blast. Keep sending me all the great information yall come up with and I'll post it to these newsletters. Keep bringing your robots - even if they're not finished, this helps get you get them finished and helps get other's enthusiastic about getting one going. I'll bring my Baby Robot II to the next meeting.

Thanks to Tyce for taking over the November 9th DPRG meeting. From what I heard, it went really well, and Tyce was super Robo teacher to the youth that came. Sorry, but I guess the Austin Robotics group video will have to be shown at the December meeting (I guess it just wasn't meant to be shown?). I was at our company picnic which was held at SixFlags (picture of Jim on the BobSled ride at SixFlags having a blast on newsletter web page to the right), so I missed the meeting! Looking forward to seeing yall at the December 14th meeting. Bring your robots! Enjoy the Thanksgiving holidays! NEXT MEETING DECEMBER 14TH! BRING YOUR ROBOTS!

Pictures from the last meeting

Roger Arrick took pictures from the November meeting and was kind enough to scan them. They're now posted below (On the Dec. Newsletter web page if you received this by email) for your viewing pleasure. Thanks to everyone who brought their robots.



Roger's D-bot and the walker robot.



Roger's suped up Trilobot and the Walker robot.



Steve showing off his robot and Tyce explaining Robotic designs

Get your pictures scanned!

by Tyce Elkins

If anyone needs a picture of their robot scanned for the web page, Tyce can scan to tiff or gif. Bring photo to meeting or make arrangements. tyce@ix.netcom.com or 817-795-8671 (leave msg)

AMD Product Literature



AMD Advanced Micro Devices has graciously sent us some literature on their latest devices for distribution for our November meeting. I hope yall were there and didn't miss out!!! We received about 18 of each product brief. I kept one copy of each, so please come to the meeting and browse AMD's impressive line of products in these handouts. These processors have glueless interface to Ram and Rom! Some include other things such as serial and other embedded goodies. These processors are based on the 80x86 architecture. The list of brochures includes:

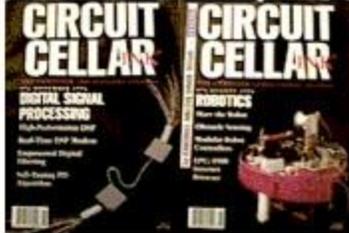
- Performance is Everything About the AMD's 5x86 processor
- AMD SD186ES Stand-Alone Evaluation Platform 40mhz 80C186
- AMD SD186ER Stand-Alone Evaluation Platform 40mhz 80C186
- AMD SD186EM Stand-Alone Evaluation Platform 40mhz 80C186
- AMD Am186ER and Am188ER Microcontrollers 80C186 w/32k internal RAM
- AMD ElanSC310 Microcontroller Embedded Am386
- The ElanSC310 Microcontroller Reference Design Platform
- AMD 80C186 Upgrades
- ElanSC400 Microcontroller Evaluation Board Am486 core
- ElanSC400 Microcontroller Am486 33 or 66mhz
- Development Tools

Dallas Semiconductor Literature



Dallas Semiconductor has graciously sent us their April 1996 "Short-Form" Catalog which gives brief product information about all of their parts. Please come to the meeting and browse Dallas Semiconductors impressive line of products in this catalog. They've got lots of great stuff including their heralded chips for timekeeping, thermal (to digital), NVSRAM, and their high speed 8051 derivative the DS80C320 that they claim is equivalent to a 99mhz 8051!

Circuit Cellar Ink Magazines



Circuit Cellar Ink has graciously sent us copies of their magazines for us and were distributed at the November meeting! I kept copies of each, so you can browse them at the next meeting if you missed out. They sent us 20 copies each of their Circuit Cellar Ink. and their Circuit Cellar Ink. Robot's issue magazines. Be sure to email them and tell them thanks for the samples. Get your subscriptions of these great magazines and tell them you heard about them at the DPRG meeting.

Gernsback Publications Magazines



Gernsback Publications (<http://www.gernsback.com>) has graciously sent us copies of their magazines for us and were distributed at the November meeting! I kept copies of each so you can browse them at the next meeting if you missed out. They sent us 15 copies each of their Electronics Now magazine and their Popular Electronics magazine. Be sure to email them and tell them thanks for the samples. Get your subscriptions of these great magazines and tell them you heard about them at the DPRG meeting.

Tech-Tools gives DPRG members 10% discount!

Tech-tools in Dallas makers of eprom emulators (Roger has 2) attended the last meeting. During the meeting they announced that they will be offering a 10% discount on all products to DPRG club members!!! Don't miss out on this great opportunity!!! They're web site will be up soon, and I'll post it as soon as I know it's up. Until then, their phone # is 214-272-9392.

This is a note to let yall know that it's now up and located at: <http://www.tech-tools.com>.

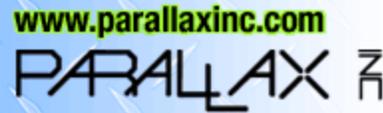
B-P Sales donates books

Bonser-Philhower Sales, Inc. donated the following books for our Library:

- Dallas Semiconductor - High Speed Microcontroller Data Book (DS80C320 data)
- Dallas Semiconductor - Automatic Identification Data Book (Memories & such)
- Dallas Semiconductor - Real Designers Don't Use Delay Lines
- Dallas Semiconductor - Training Info.

B-P sales is located at: 689 W. Renner Road, Suite 101, Richardson, TX 75080. Phone: (972)234-8438 Fax: (972)437-0897. Many thanks to B-P sales for the donated books. (I'll bring them to the next meeting so Tyce can add them to our Library).

Parallax sends catalogs



has graciously sent us 20 of their catalogs: PIC Tools and Basic Stamp Computers. Please come to the next meeting and get your copy of their impressive catalog of awesome products. Their products include the line of Basic Stamp computers some of which can run from a 9 volt battery and can be programmed in the Basic language up to many different PIC variants and PIC experimental boards. They also carry other products such as PIC device programmers, compilation software, X10 units and more. Many thanks to Parallax for sending us their catalogs to browse.

AMD sends another data sheet

In addition to the data sheets distributed at the last meeting, [AMD Advanced Micro Devices](#) sent an additional data sheet for the AMD Elan SC310 Microcontroller (AM386 based). Many thanks to AMD for sending us this additional information. Please come to the next meeting to get your copy of this literature.

Get your copy of Mobile Robots book for \$5 + shipping

This message was found in the newsgroups by Erick Wagner

I didn't believe it, but "Mobile Robots Inspiration to Implementation" by Joseph L. Jones and Anita M. Flynn ISBN 1-56881-011-3, on sale in bookstores for \$44.00, can be had for FIVE DOLLARS!

On 10/10/96, I sent \$4.95 + \$3.00 shipping to Edward R. Hamilton Bookseller, Falls Village, CT 06031-5000. Today (Friday) I received the book in perfect new condition. I found at least 200 robotics books at the UCSD library, and this is the only one I rated "must have" for anyone considering autonomous Rug Warrior, 6.270, Handy Board, and similar robot projects.

Steve Rainwater verified that [Edward R. Hamilton Books](#) are legit and that he's bought books from them in the past. I've also found a few places on the internet that list their address (even they don't list a PO BOX or address) and talk about them so it looks like it's a great deal that's real.

EPLD info Wanted

by Tyce Elkins

Needed: Photocopy of "Getting Started with Xilinx EPLDs" PART 1 from the September issue of Circuit Cellar Ink. If you can't copy it, bring it to the next meeting and I'll read it there. tyce@ix.netcom.com

TYCO Video Cam

Have yall heard about the TYCO kids Video Cam. It sells for about \$80-\$100 dollars, it's B/W and appears to output NTSC video. It looks like this could be a nice robotics gadget if the price falls a little bit. It would be a lot nicer if it were color too. Eric Yundt mentioned that for about \$149 you can get the "Eye Ball" which is color video. Either way, match the video cam with a \$99 video capture board, and a PC based robot has sight!

A new Robotics Mag

Check out the new KrisTech Robot Magazine at: <http://www.kristech.com/> and if you're quick enough, you can see their first issue! Following is a quote they sent to be placed in our newsletter:

KrisTech Robot Magazine is a new internet Web site designed for robot enthusiasts & hobbyists as well as robotics students and educators.

Each week, KrisTech Robot Magazine is updated with new robot photos and practical design ideas. The original articles in KRM are exclusive, not found anywhere else.

Special for this Christmas season, we feature over a dozen gift ideas for robot builders (adults and children alike). The kits featured come from reputable sources like A K Peters, Mondo-tronics, Lynxmotion, Lego and more.

Point your Web browser to <http://www.kristech.com> for something new and interesting.

How to get Email and listserv subscriptions

Below are some listserv and email newsletters that yall may want to start getting via email!

Motorola listserv

To subscribe to one or more list, send an E-mail message to majordomo@freeware.aus.sps.mot.com. No subject is needed, but in the body of the message put one (or more) of the following text strings:

- subscribe mot-68hc11-apps
- subscribe mot-68hc16-apps
- subscribe mot-68332-apps
- subscribe mot-mpc500-apps

If your subscription is successful, you will receive return mail welcoming you to the mail list and telling you how to unsubscribe if you ever want to. Once subscribed, you may post a message to the list by sending mail to:

- mot-68hc11-apps@freeware.aus.sps.mot.com
- mot-68hc16-apps@freeware.aus.sps.mot.com
- mot-68332-apps@freeware.aus.sps.mot.com
- mot-mpc500-apps@freeware.aus.sps.mot.com

For more information see the web page at: <http://129.38.232.2/lit/faq/major.html>.

Philips Microcontroller Email Newsletter

Goto to the Philips site at: <http://www.philipsmcu.com/news.html> and fill out their form to get on their email newsletter.

Or Join Philips Microcontroller Discussion Forum

To subscribe to the Philips Microcontroller Discussion Forum, put the word "subscribe" in the subject field of an e-mail and send it to: forum-request@PhilipsMCU.com

Beam Robotics Email list

To subscribe to the [Beam Robotics](#) email list, put the word "subscribe" in the subject field of and email and send it to: beam-request@webconn.com

Mobile Robot Competition

To subscribe to the official mailing list of the [mobile robot competition](#), you can send mail to Majordomo@cc.gatech.edu with the following command in the body of your email message: subscribe aaai97

AI Newsgroups

Roger Arrick sent in a great URL reference to some AI news groups that can be found at: <http://nic.zcu.cz/services/news/groups/comp.ai.html>. I've also copied some of them here for direct access:

- [comp.ai](#) Artificial intelligence discussions.
- [comp.ai.alife](#) Research about artificial life.
- [comp.ai.edu](#) Applications of Artificial Intelligence to Education.
- [comp.ai.fuzzy](#) Fuzzy set theory, aka fuzzy logic.
- [comp.ai.games](#) Artificial intelligence in games and game-playing.
- [comp.ai.genetic](#) Genetic algorithms in computing.
- [comp.ai.nat-lang](#) Natural language processing by computers.
- [comp.ai.neural-nets](#) All aspects of neural networks.
- [comp.ai.nlang-know-rep](#) Natural Language and Knowledge Representation. (Moderated)
- [comp.ai.philosophy](#) Philosophical aspects of Artificial Intelligence.
- [comp.ai.shells](#) Expert systems and other artificial intelligence shells.
- [comp.ai.vision](#) Artificial Intelligence Vision Research. (Moderated)

Robotics Kits locations

Some people on the internet have asked where one can buy robotics kits. Many hobby/science shops or toy stores carry some of the items below. Try checking out the following:

- <http://www.owirobot.com> Movit / Owikits robot kits
- <http://www.sciencekits.com/robots.htm> Rockville Creative Learning
- <http://www.robix.com> The Robix robotic system
- <http://www.lynxmotion.com> The Lynxmotion arm kit
- <http://www.robotstore.com> "The Robot Store" aka Mondo Tronics (lots of retail robotics stuff)
- <http://learningtoys.com/98600.html> A place that carries the Robotix system.
- <http://agora.rdrop.com/users/marvin/otherkit.htm> B-Bot frame

Remote TV Broadcasting

I noticed something that looked kinda slick in the latest [JDR catalog \(http://www.jdr.com\)](http://www.jdr.com). It's a TV transmitter kit for only... drum roll please... \$22.95. So, for \$23 bucks it'll allow you to send your standard audio & video signals over the air. Requires a 12v supply and can transmit up to 300 feet. There's no case, so if you want a case they charge another \$14.95. Wouldn't it be cool to put that thing on a robot, add a video camera and transmit to a remote TV. You could run your robot around your house to see the world on your TV, and never leave your comfy chair. Or better yet, have an off-robot computer doing ai dsp visual recognition. Another cool idea might be for a blimp robot to transmit the video from up to 300 feet in the sky back to a ground station! It'll allow you to transmit on TV channels 2-6 so you could easily have two transmitters (and get two cameras) and transmit visual stereo!!! For that matter, have 5 cameras setup all around your robot and get panoramic transmission back.

Did You Know?

This is not robotics related unless your robot somehow uses a past calendar. Anyway, an unusual calendar is printed for September 1752. That is the month 11 days were skipped to make up for lack of leap year adjustments. It looks really weird to see the days 3-13 removed and wouldn't you feel sorry for anyone having a birthday during that time (Anyone born back in 1752?). To see this weird calendar, at a unix prompt, type:

```
cal 9 1752
```

Tyce's Walker Robot

by Tyce Elkins

To illustrate mechanical engineering concepts, I built a frame walker for the Odyssey of the Mind competitors who attended the November meeting. The walker is based on wind up toys like the Burger King Toy Story walking binoculars. These are the CURRENTLY available in the kid's meals. (don't wind them clockwise)

My walker is based on a thirteen dollar battery operated truck. The rear wheels, motor and gearbox are mounted on a balsa wood frame. The feet are "C" shaped and made of spruce. The legs are scale plastic "I" beams which attach to the truck wheels with brass tubing pressed through the hard plastic tires.

The two biggest concerns were the lifting torque required to lift the frame walker each step and frictional losses in the sliding/pivoting "knee". I selected a fairly powerful toy and use baby steps to solve the first concern. The "knee" can be located above or below the wheel/crankshaft. I put the knee below and used two screw heads to sandwich the "I" beam. This created a low friction, adjustable sliding pivot. Unfortunately the width of the truck assembly created more flex in the "I" beam than I anticipated.

The robot tripped over it's own toes. The quick solution was to increase the stroke length. The wheel only provided two convenient radiuses, equivalent to about seven eighths and two inches, respectively. This was much more stroke than needed, very close to the maximum torque of the motor. Later I will screw a crankshaft plate to the wheels that will provide infinite stroke adjustment and double as a cam to drive the arm movements.

On the way to the club meeting I purchased 4 AA Duracell batteries. I realized one of the battery packs was not functioning when I demonstrated the walker. Apparently the new "Power Check" tester that is now mounted on every Duracell battery had shorted one out. With half the batteries working the walker worked when the weight of the batteries was removed.

The next version will use a short stroke length with a highly elliptical "foot path". The knee will probably be an aluminum aperture with wooden legs. The batteries will not have unneeded features.

Suggestions for the DPRG equipment

It was suggested to elect a person to take care of the equipment were gathering (equipment librarian), and a parts librarian. We could pick up a scope for about \$100, maybe a meter, emulator, compilers, etc. The parts librarian would be responsible for robot parts that people donate and would make them available to people who are building something. We need a strong policy, people can't get things they aren't going to use. Or to put it in a positive way, If

someone checks out something (parts, equipment), they have to use it or loose it. The "checkee" must be a member (\$20 or something) to checkout equipment, books, or get parts. The club could buy 2 large plastic containers, one for equipment, one for parts, just like the library has. Parts shouldn't just sit on someones bookshelf. This may be something we'll want to discuss at our next meeting.

EPLD Software found

Software for generating EPLD code for use in the Promax device programmer was found for about \$199 at Jameco. This beats the \$399 price found at JDR. Purchasing this will fulfill our deal with Kevin where we buy the EPLD code generation software and he will donate his \$600+ device programmer to the group. We will want to vote on this during the next meeting.

DPRG T-Shirts

It has been suggested that we get Group T-Shirts. Roger has a friend in the T-shirt printing business who gave him the following quote:

Assume: White 50% cotton, 50% something manmade (won't shrink like 100% cotton), 3 colors - 1 side. Qty 24: \$8.85 or Qty 48: \$6.47. Setup charge: \$25. \$2 extra charge for XXL and 3\$ for XXXL

We can get other color shirts, print on both sides, etc. When we decide, I'll get a quote on exactly what we want.

I suggest you try to take PREPAID orders for \$12.00 a shirt, maybe \$15 then we can order 48 & have extras. You could post the artwork on a Tshirt web page. The total would be \$313, if we could sell 25 it would break even.

If you're interested in a T-Shirt [send me email at jbrown@why.net](mailto:jbrown@why.net). If you're really, really interested, send a check for \$15 to DPRG and denote FOR T-SHIRT.