VOLUME 4, NO. 1 MARCH 1996
A NEWSLETTER FOR PERSONAL ROBOTICS ENTHUSIASTS

TAKE ME TO YOUR LEADER!

Elections made and the ballots are in! The many efforts of skillful campaigning well spent! Our wonderful, glorious leader, Eric Yundt, has decided to remain as president for another term (or rather, no one else would take the job so he's stuck with it for another year!). Eric has been the DPRG president for the past two years making this term to be his third year as president. This year looks to be a challenging one and will surely put many demands on our president. Feel free to congratulate him and encourage him in any way. So let's hear it for Eric Yundt - the '96-'97 president!

FUND$ ARE FOR $PENDING

Discussion has been continuing for several meetings on what to purchase with the DPRG funds. Currently DPRG has about $1300 in the bank. Of course much of this money will go to producing and mailing out the newsletter, but what about the rest? During the last meeting all DPRG members that were present decided to use part of the money for purchasing a multi-device programmer. Currently, the exact unit to purchase has not been decided, but will most likely be decided on and purchased before the next DPRG meeting. The cost of this device will likely be between $200 and $400 dollars. This programmer will be allowed to be used by DPRG members for testing project designs. A procedure for borrowing the device or even who will be responsible for the programmer will be decided at another meeting. If you would like to use the programmer, you will want to get your name on a list as soon as possible by coming to the next meeting and signing up. Although the borrowing procedure has not been decided upon, a security deposit or a filled-out check will most likely be required to check out the programmer.

Check out the DPRG web page at:
http://www.robotics.com/dprg.html

COME FLY WITH US!

The DPRG Newsletter is published monthly by the Dallas Personal Robotics Group. Membership in the DPRG costs $20 per year and includes a free subscription to this newsletter, which makes great model airplane stock. For more information, contact:

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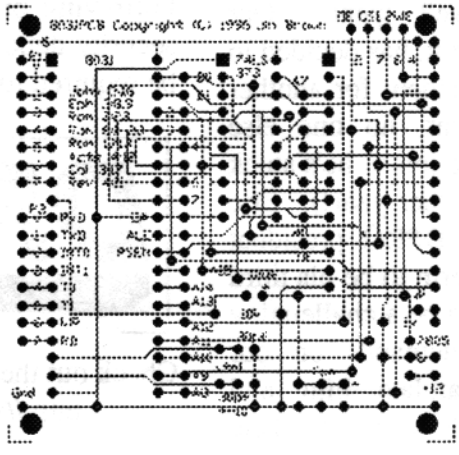
8031 PC Board Project

by Jim Brown (jbrown@why.net)

I've tried just about everything, to make an 8031 etched pc board. It's not easy. I wrote a nice program in PostScript for laying out the design on a laser printer. I then printed the design on two different types of paper made just for etching pc boards - one was clear acetate and the other was some sort of paper with a coating that comes off in water. I never was really happy with the way either one turned out, and only 1 out of each 5 were even worth trying. I was threatened with the idea of wire wrap - ick.

I found a place on the internet that will make my pc board and even gave me some low end pc board design software to design it. When I was finished I FTPed it to their upload directory and as of this writing they are looking at it. I hope it turns out O.K. This is what it looks like:



The board basically will handle an Intel 8031 (8 bit CPU) and a 2764 (8k eprom). With this combination the board makes a really nice stamp-like board for doing general purpose CPU projects with 16 I/O lines for use. The 8031 can run at a speed of 1 MIPS at 12 MHz. The board has all of the CPU lines, address and data lines exposed to external pads (great for a sip header). Other chips and electronics designed into the board include an 74LS373 for the address latch, a 5 volt regulator (7805), and a place for a power indicator LED. It was designed to be fairly easy to convert for other memories or CPUs if you're familiar with the connections of such. And, it's easy to add on extra stuff like I/O or memory by using the header lines and a suitable proto board. The board was designed to be generic enough to handle most applications while on the other hand easy to upgrade for those special applications.

The dimensions of the board are approximately 2.5" x 2.5". It is a two sided pc board with four mounting holes at the corners. It has all of the chip placement clearly marked and 8031 port 3 lines marked. All address and data lines are also clearly marked.

The board can control just about anything from attaching a LCD module using 6 of the I/O lines, buttons for inputs (using simple pull up resistors), and can drive LED's with a simple addition of a buffer chip (7414 or 7404). The 8031 has a serial port and with the addition of a serial line chip such as the max232 you can talk to a PC at just about any baud rate up to MHz although 2400 to 9600 baud will be most likely used baud rates. Adding an 8255 I/O chip (with maybe a 74LS138 chip for address decode) you can add an additional 24 I/O lines. If your up to it - with maybe some prior experience, you can replace the 8031 with one of those eprom versions like the 8751 and use the 2764 socket for static ram instead with a few minor modifications to the board (no guarantees on this though - you're on your own).

The board is expected to cost about $7 - 8 bucks to produce and when I get them in (for a total cost of about $15 with all parts included), I'd be willing to sell the board only at cost to any DPRG member (you pay any shipping if necessary) and twice cost for non-DPRG members. Eric Yundt, our president, made an executive decision for DPRG to purchase $100 dollars worth of boards to resell to DPRG members. I'll buy back any boards that no one wants.

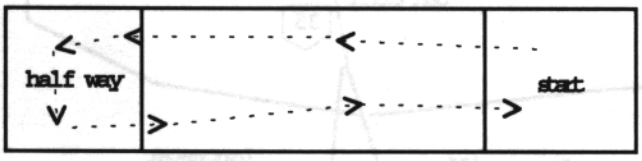
My idea of some typical applications would be either an entry level robot brain or as a peripheral controller with serial interface. For example: pull out that old 386 board that you replaced months ago with your new pentium motherboard for the real robot brain, and then hook up a bunch of these boards to control the motors and sensors.

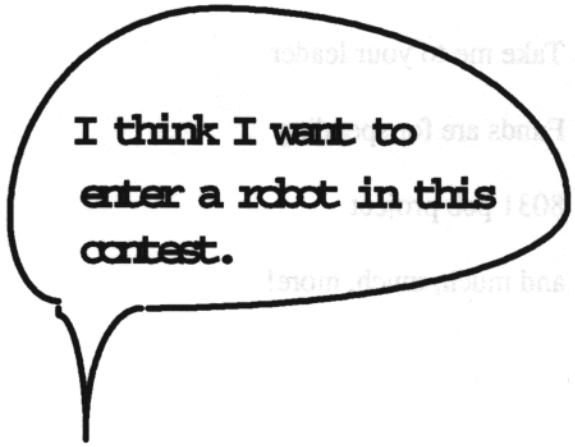
Another Robot Contest

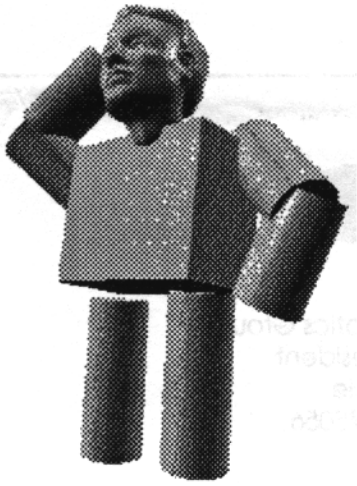
Are you ready to enter your robot in the Olympics? (Then you're a lot farther along than the rest of us.) DPRG will have another robot contest tentatively set for the meeting during the month of May. The robot contest will consist of the same basic rules as last time.

More accurate information will hopefully be published in the next newsletter. Until then the basic layout will be something like a strip 4 foot wide with a base at each end 4 foot square. The rules are for a robot to self-navigate from the starting box to completely inside the halfway box and then back to the starting box. It's not as easy as it sounds! The fastest robot wins. (Really anyone who participates is a winner!). Additional consideration is awarded for turning around in the halfway box and for making some sort of noise during the course.

The idea of the contest is to encourage participation and as an incentive to finish up those half-built robots out there.





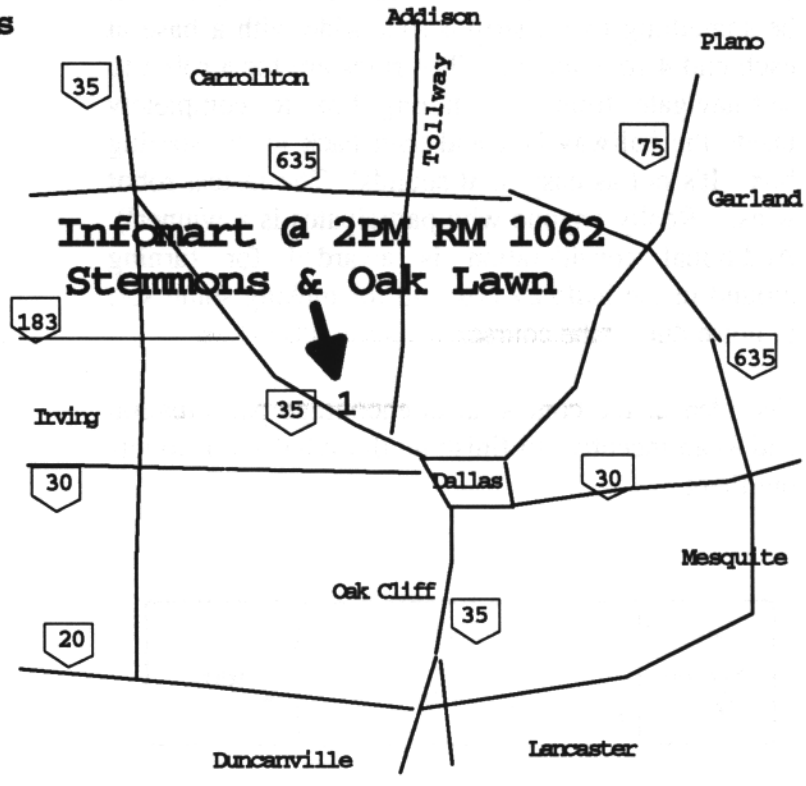


Upcoming DPRG meeting dates at the Infomart:

- March 9th, 1996
- April 20th, 1996
- May 18th, 1996
- June 15th, 1996
- July 20th, 1996
- August 10th, 1996
- September 14th, 1996
- November 9th, 1996

Meeting dates and room numbers are subject to change... Be sure to check the schedule on the overhead projector as you enter the InfoMart!

Dallas Personal Robotics Group



Inside:

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- ☐ and much, much, more!

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