

MAY 1997 ISSUE OF THE DPRG NEWSLETTER

This has been one wild month. I don't know if it's sun spots or moon glow or the Hale-Bop comet, but the growing pains of DPRG has begun to surface. The needs of the group such as getting an incorporated non-profit status, bylaws and more are becoming necessary evils to support our robotics habit if we want to continue to grow as the Dallas Personal Robotics Group. On the email list it seems that 90% of the talk was about the business. I really hope we haven't lost some good potential members because they look and see that we're all business and no robotics. One reoccurring saying was: Let's get back to robotics." I fully concur. Let's get the necessary stuff out of the way as quickly as possible so that we can get back to the fun stuff. All of this Presidential stuff is "harder than it looks." Everything was different this month from being reassigned to room 5030 (hopefully we'll be back in room 1061 in May - although I liked the large space), to starting to do business via email. It's a different world, but it's going to be a better world, I believe.

The Dallas Personal Robotics Group is one of the nation's oldest special interest groups dedicated to the development and use of personal robotics and has been around since 1984.



Look at the huge crowd at the April meeting. Officially we had 24, but a few more came in later pushing to total to over 30!!!

DPRG's Upcoming Contest

For information on the DPRG's upcoming contest, including layout, contest rules, etc, see the [February newsletter](#)



Jon Shows his Basic Stamp Computers

Jon Williams gave a nice presentation of the Basic Stamp I and II modules as well as a serial backplane for LCD character display modules. He went into great detail of their abilities and what was needed for developing using the Basic Stamps. He mentioned that Scott Edwards Electronics carries the serial backplanes for the LCD character displays, and [Parallax](#) carries the basic stamp models I & II.



Later in the meeting Jon also demoed a line following module using LEDs and phototransistors that he purchased for about \$15 from a mail order company. He had it hooked up through a basic stamp and also to an LCD module. As he ran the photo module (it wasn't infrared I don't think) over a black stripe he drew on paper, the LCD would give the readings of the analog signal levels it read. He also demonstrated as he ran the photo module over the tape we set

up for the robotic contest trial runs, but the readings were not as strong. He suggested that the contrast of the tape to the carpet needed to be better by using either white or reflective tape.



Larry Kerns Shows His Robot

Larry Kerns brought in his robots on a nice wheeled cart he made himself. The first robot was a three teered robot utilizing [New Micros](#) board the NMIY0031 (costs around \$39). The base used two lawn mower tires connected to independent 12v motors. To balance the base there is a caster at each end. The base of his robot was made with 1/2" plywood with cutouts for the wheels. The teers are made with plexyglass, one that Roger Arrick brought in for giveaway at a previous meeting and another one he purchased. The standards were made from 3/4" PVC pipe.

Larry also brought in another smaller robot he made with a motorized toy axel Roger Arrick brought in at a previous meeting and with angle aluminum he purchased at a hardware store. Larry also brought in a stepper motor controller kit he purchased for a mere 10 dollars (seems to be a good deal since others I've seen to be as high as \$20).

Atmel Sends Microcontroller Books

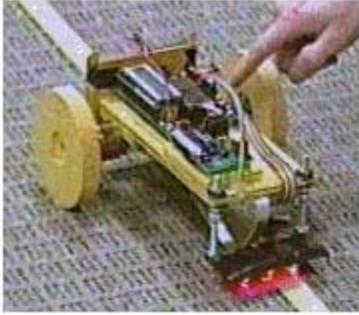
[Atmel](#) donated 10 of their microcontroller books. These books include information about their 8051 variants with flash memory on board and also their 20 pin 8051 variants. They went very fast! I hope everyone that wanted one got one. Thanks again to Atmel for their generous donations.



Clay Timmons Shows the One Week Wonder

Clay Timmons brought in his line following robot he called the One Week Wonder. It is based on Marvin Greens BotboardII and utilizes an LCD character display for text output, a LED and phototransistor array for line following detection, 8 AA batteries for the power supply, and two gear head motors for the drive.

The wheels of his One Week Wonder were attached directly to the shaft of the gear head motors by attaching a gear to the end of the shaft of the motor that had a set screw, he then drilled out a portion of the wooden wheels and bolted the gear to the wheel (probably not in that order). He mentioned that he didn't make the wooden wheels himself, but purchased them from a local hobby shop.



Clay gave a fine presentation of his robot and then we walked over to the area that was set up for the contest trial runs. He took a minute and explained the concepts he had come up with for first trying IR LEDs and phototransistors and then switching to regular red LEDs and phototransistors. He mentioned that he had difficulty because each of the phototransistors are slightly different causing him to have to calibrate the readings so that all of the readings will be similar. He took a moment and got a reading just of pure carpet, then he got a reading of pure tape, then he sat his robot in running position over the tape and took a reading.

After he was finished calibrating his robot, he sat it running the course at the slowest speed. It moved very slow, but it was doing it!!! There were a few comments from the onlookers, but everyone knew that it was much harder than it looks to get a robot to do just that. Clay then set his robot to go faster with a variable resistor pot he had to adjust the speed of the motors. At the faster speed, it was still following the line (about 1 inch a second) and doing very well. Clay upped the speed again, but the robot began having trouble staying over the line. At the fastest speed, the robot seemed to not see the line at all. It was a very impressive display.

You can [download](#) a video of the One Week Wonder robot from the DPRG website, but be prepared - it's a big 10meg file so it'll take an hour or more to download. I hope y'all enjoy it.



Roger gives the One Bit Robot a Trial Run

Roger Arrick, in an attempt to show how easy it is to make a robot and enter it into the contest, brought his One Bit robot and ran it for a contest trial run. As expected, the robot worked beautifully. Who knows this may be the robot that wins the contest due to its speed and simplicity of design. The One Bit works by zooming across the floor until it hits the wall which switches the robot in reverse and just zooms back to the starting area. It's basically made with a couple of AA batteries, a toy car axle and motor, and a DPDT switch connected to a dowel rod.



Tyce Shows His Robot

Tyce Elkins brought in his robot. It uses the motors and gearbox from a child's sidewalk car to power the two main

drive wheels. The frame is made from angle aluminum and stands about three feet tall. To balance his robot, he has made custom casters to his specifications complete with ball bearings that will be placed in the front and back of his robot. The wheels appear to be 9 inch utility cart wheels. He mentioned that he plans to mount a PC mother board vertically along one of the sides, and mount batteries on the bottom platform. He plans to mount a video camera on the top for video capture.

Philips Semiconductor to donate books

Don't miss out on the next meeting, Larry Kerns managed to contact Philips Semiconductor directly, and they emailed him back stating that they would send us 30 sets of their 8051 microcontroller manuals sets. Each set consists of two books and a CD rom. Don't miss the next meeting and get your Philips Semiconductor databooks on the 8051 microcontroller variants that Philips Semiconductor provides. Thanks to Philips Semiconductor for their generous donation.