

## NOVEMBER 1993 MINUTES

### 1st DPRG Robot Contest

After several months of preparation, some robot builders were simply not ready to have their machines run the contest course at the November DPRG meeting. A crowd did show up to watch the event at which 3 units did complete the course. The first one to run was a simple 3-wheeled device made with a 2 by 4, DC gear motor, battery pack and a toggle switch. The switch was connected to a long lever that was used to reverse the robot as it came in contact with the wall. Even though this low-tech approach did not move in a straight line, proper positioning allowed it to complete the course after only three tries. The second entry was constructed using parts from a motorized toy along with some special mechanics created with Erector Set components. Traction was a problem on the carpet but the unit was able to complete a substitute course on a table top. The unit went all the way to the end, stopped and returned to the starting point as the rules require. The third entry was a 6-wheeled robot which used a PC-based control system that was "taught" by its operator then simply repeated what it learned to complete the course. Wheel slippage was a problem with this robot which had no sensors on the wheel but wasn't enough of a problem to prevent it from completing the course.

Because so many robots are on the brink of being completed, the contest will be run again in February or March.

**Roger Arrick**

DPRG President

## SEPTEMBER 1993 MINUTES

The September meeting was packed with homebrew robots. Not a single store-made unit was found (such as heros). All were crafted by people who love making things (specifically robots) work! The activity level was so high that there wasn't any time for the normal bureaucratic nonsense that consumes 50% of the time at other club's meetings. People were huddled around robots as their creators showed off new accessories. Although not all units were ready for the contest trial run, most were capable of moving under operator/computer control. If you think it's simple to get to that point, just ask any builder how many hours it took.

**Roger Arrick**

DPRG President

## JULY 1993 MINUTES

At the July meeting, many members came together to cuss and discuss the robot contest rules and regulations. If you have the June 1993 newsletter, the contest proposal was submitted. The first issue raised was the idea of a point system. This would allow a robot that was slow, for example, to accumulate points for accuracy or some other strength to compete better with units that just had lightning speed. Extra points would be given for units that actually turned around instead of just reversed, or never touched the wall, or sang happy birthday, etc. This a great idea but we fell short of agreeing HOW this system would be implemented. We all did agree that the starting and ending area (see the diagram in the June issue) would be increased to at least 5 feet for those of us with refrigerator-sized monsters. Members also thought prizes sounded dumb. I do think we'll keep the 'Bucket of Bolts' Award for last place. We'll try to finalize these issues at the August meeting. The final contest guidelines will be published in an upcoming newsletter.

**Roger Arrick**

DPRG President

## MAY 1993 MINUTES

The May meeting had several interesting sights including Tom's new robot (I don't know its name yet). The concept is simple and practical. There are three layers made of aluminum sheet. The bottom layer has the drive wheels which are connected to size 23 stepper motors via timing belt reducers. This is the first robots we've seen that users steppers for drive motors. Tom used bearing brackets and hardware from some old medical machinery which gives the robot a very professional look. Also on the lower level are the battery packs which can be moved to balance the entire system. The middle layer will contain the computer based on a 386SX motherboard, a floppy, and maybe a hard disk in the future. Current consumption is a couple of amps so far. The upper level will contain the sensors, speaker, and who knows what else. I predict Tom will have great success with his new creation. We look forward to watching his progress. Good luck Tom!

Attendees of the May meeting picked up **FREE** LCD data books which were donated to the group by a local Rep. Several members are connecting LCD's to control computers for output since they have low power consumption.

Steve Rainwater brought his RC 4-wheel-drive truck base and his new driver modules. He'll be controlling the servos using the PIC microcontroller mentioned in a recent issue of Computer Craft Magazine. Go-Steve-Go.

**Roger Arrick**  
DPRG President

## APRIL 1993 MINUTES

If you attended the April meeting, you saw several homebrew robots including Mitch's computer-controlled Armatron, Roger's 6-wheeled D-Bot and Bud's Luther. In order to generate some pictures for the newsletter, Roger brought his camera and the robots began to "ham it up."

Attendees of the April meeting picked up their **FREE** Motorola 68HC11 microcontroller data books so graciously donated to the group by Gus at the local branch office.

Steve Rainwater brought the beginnings of his new creation based on an RC (remote controlled) 4-wheel drive truck. Members were impressed when Steve attached a battery from Roger's D-Bot to the drive motors. The torque was amazing! The 500 volt battery may have had something to do with it. We'll be keeping track of Steve's progress

Steve Conrardy brought the DPRG library for members to pillage through - lots of good stuff in there!

**Roger Arrick**  
DPRG President

## MARCH 1993 MINUTES

Steve Rainwater gave an excellent demonstration of his BBS complete with 36" VGA monitor. The Interocitor BBS is now the official DPRG bulletin board and can be used by members to exchange ideas and software. 200 meg of AI and robotics related files are available for download. The number is (214) 258-1832.

Mitch brought and demonstrated his computer controlled robot arm. He connected a Radio Shack Armatron to his own Intel 8051 based single-board controller by chopping off the hand control cable and attaching its leads to a series of MOSFETs. The MOSFETs can be turned on with the digital I/O pins on the 8051. After conquering the hardware, Mitch wrote a program in C, compiled it creating an Intel hex file, then programmed the processor. All software development was handled on a PC. The crowd enjoyed the demo even though several members were wounded when the arm's battery was plugged in backwards. Good Job Mitch!

The DPRG's librarian Steve, brought (strangely enough) the DPRG library. This has become a major source of information for club members. If you have any books or software you would like to donate to the club, contact Steve Conrardy.

Roger did **NOT** bring his 6-wheeled "DBOT" due to the lack of a forklift. Other goodies were brought but I don't remember what they were.

**Roger Arrick**  
DPRG President

## FEBRUARY 1993 MINUTES

The February DPRG meeting was, without a doubt, one of the best the club has ever had. Over 20 people attended to enjoy numerous robot demonstrations and talk technical for the afternoon. Some were informed of the meeting by The Interocitor bulletin board.

Several mouths were seen hanging wide open as Bud Litman showed off his 3-wheel mobile robot called "Luther". Controlled by a 68HC16 microcontroller and powered by a stack of rechargeable batteries, Luther roamed the floor looking for innocent victims to talk to, without placing tire tracks on their shoes. Bud also showed off his "wall-tracking" software which uses the ultrasonic transducer to drive parallel to a wall. Although the system needs some tweaking, Luther did walk next to the wall, and damage to the meeting room was kept below the \$1000 limit. Just kidding Bud, thanks for a great demo.

Dutch Uselton brought his wheel-chair based robot which has an onboard IBM style computer and a CRT. His system includes dual-wheel motor drive and an ultrasonic ranging system. Dutch has also built an optical encoder feedback system consisting of two perforated wheels which interrupt optical sensors. The signals from the sensors are used by the guidance software to keep the robot on track. Thanks Dutch!

Roger Arrick brought his 6-wheeled "DBOT" along with a box of goodies including a compass sensor and some linear stepper motors.

Erick Wagner brought a box full of electronic stuff and gave it to anyone interested. A bag full of solid state relays was among the "stuff". Thanks Erick.

**Roger Arrick**  
DPRG President

## JANUARY 1993 MINUTES

The January meeting included several demonstrations and some interesting discussions. The meeting also included the elections and appointments for the new year.

**President** - Roger Arrick

Roger has been an active member of DPRG for the last year and has built a homebrew robot using commonly available components. Roger will focus his energy on publication of the DPRG news letter, writing articles, giving mini-seminars on robotic subjects, and encouraging others to participate.

**Vice President** - Bart De Boisblanc

Bart has been an active member for years and has become an important part of the meetings. His excitement is a great encouragement for other members. He will continue to be vice president and the alternate CCD representative.

**CCD Representative** - Mike Cronick

Mike will continue to be the official CCD representative for DPRG in 1993. His knowledge and interest will be a great asset for another year.

**Librarian** - Steve Conrardy

Steve will be taking care of the large DPRG library. Dozens of books covering subjects such as artificial intelligence, speech synthesis and robotics are a valuable resource for DPRG members. Steve is considering making a portable book shelf which can be stored at INFOMART and moved to each meeting.

**Roger Arrick**  
DPRG President