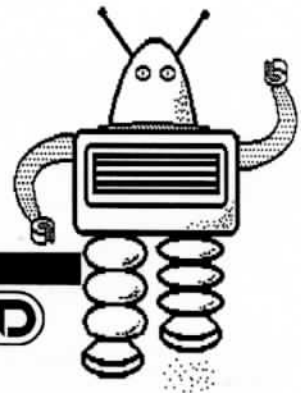# THE ROBOT COMPANION

The Newsletter of the Dallas Personal Robotics Group
August, 1989
Stan Spielbusch, Editor

CCD

AUGUST MEETING AGENDA

The August meeting will be held on August 12th at 1:30 PM at the Dallas Infomart.

Stan Spielbusch will show his maze-bot in progress and describe its evolution. He hopes to have an in-depth discussion of maze robotics possibilities, including robot design, algorithms, maze configurations, etc.

This short agenda does not indicate a dis-interest in any way. The editor was simply taken by surprise, thinking that the meeting date was a week later. The meeting should be an interesting one, despite the lack of a full agenda!

JULY MEETING MINUTES
by Stan Spielbusch, filling in for David Ratcliff

The July meeting was alive with discussions and demonstrations. I hope the trend continues!

The meeting time was changed to 1:30 PM by a nearly unanimous vote. The meetings will now end at about 3:30 PM, although we could probably have the room until 4 PM if necessary.

Brian Vaceluke showed a brief example of his home navigation program for the HERO 2000. The key point is its flexibility and ease of programming. See the July, 1989 issue of The Robot Companion for its features. Since the article, Brian has also added many new features.

Stan Spielbusch showed his "optical leash" program for the HERO 2000, in which the robot locates a light source (flashlight) with its rotating optical sensor, and follows it. The range in a brightly lit room seems to be about 10 to 15 feet, depending on the brightness of the flashlight.

There was a preliminary discussion of the robot maze project. While it seemed to raise interest, more details need to be defined before it can truly be called a project.

A few members are interested in designing and building an X-Y table, suitable for routing, welding, and other heavy-duty work. There was some discussion about this.

The Computer Council of Dallas (CCD) has requested that we include an article for them each month, which starts with this issue.

NOTES FROM THE EDITOR

by Stan Spielbusch

Robot Clubs

I have found out about another robotics group and a good newsletter. The group is the Connecticut Robotics Society, and the newsletter is the Robot Review. It's a new newsletter (Issue number 8 is the latest), and seems to be published 4 to 6 times per year. It's about the same length as ours (7-8 pages), and typically contains 2 feature articles about robotics in general. In the 2 issues I have, I didn't see a single mention of Heath robots (good for them) -- on the other hand, not much about homebrew, either. Some good product reviews and robotics discussions, though. Though I haven't seen direct connections, I believe that the group and the newsletter are both sponsored by the Science Museum of Connecticut, 950 Trout Brook Drive, West Hartford, CT 06119. Phone (203) 236-2961. Subscription is $12 per year.

Another organization is the National Service Robot Association (NRSA). This organization is devoted to the applications of robotics in human services such as health care, education, security, space and undersea exploration and other non-manufacturing areas. As a result, many of the robotics they are involved in are mobile, self-sustaining intelligent robots, like the ones we enjoy. They have a quarterly newsletter, a membership directory, book and film discounts, and other membership benefits. The dues are $30 for individuals, $12 for full-time students, and $300 for businesses. Contact NSRA, 900 Victors Way, P.O. Box 3724, Ann Arbor, Michigan 48106.

Member Feedback

William Sayles of Owasso, Oklahoma has an interesting task for his HERO 2000, when he gets it built. He wants to use it as a baby sitter/monitor for his soon-to-be twins. That's a great idea, William, and it's even useful! I'm anxious to see your progress with it. If anyone has any hints or ideas for this project, let me know and I'll print them or forward them on to William.

More HERO Jr. owners are coming out of the woodwork! This is an interesting phemomenon -- I think more of our members own HERO Jrs than any other robot, and yet I get no articles on it. I mostly get letters requesting information on how to program it. I'm still waiting for someone to lend us the BASIC and Programming cartridges and RS-232 interface for duplication. If someone is not currently using their cartridge or interface, PLEASE send it to me and I'll do everything I can to make duplicates available to other HERO Jr owners. Then maybe we'll get some projects going. For those who would like to correspond with other HERO Jr owners, here's some new ones:

David Astin, Rt 5 Box 228, Phenix City, AL 36867. Phone (205) 297-4713.
Ronald McDaniel, Chapel Hill Towers, Apt 206, 1101 Independence Ave., Bldg 1, Akron, OH 44310. Phone (216) 633-4453.

PRESIDENT'S CORNER

by Ed Rivers

If you missed last month's meeting, you should be aware that the resolution to change the meeting time passed with little difficulty. As a result, our main meetings will start at 1:30pm beginning this month. Don't be late!

I talked to Walter and Bev Bryant during the past month, and they expressed interest in holding a user lab at their new home in Flower Mound. We settled on August 27th at 2pm. Be sure to come to the meeting on the 12th to get directions to their home. If you miss the meeting, give me a call and I'll try to fill you in.

Science Digest magazine will very often contain articles about robots and robotics. In the July '89 issue, a robot named Hermies IIB is shown reading an analog meter. It will then adjust a control knob to obtain a desired setting. If you look closely, you can see that the robot has two 'Hero 1' style arms. The article 'The Mind of a Machine' talks about neural networks bringing AI to ordinary personal computers.

KERA will be holding their August pledge drive between the 5th and the 20th. We will probably not be attending as a group unless there is strong interest. Individuals may contact me if they would like to help out.

HOMEBREW IDEAS

by Stan Spielbusch   (Letter by David Barrett)

I have received a letter from David Barrett, along with some product information on a small single-board computer that would be ideal for a maze-bot. I have summarized the letter below:

Dear DPRG,

I have been looking at various possible configurations for homebrew robots.

A couple years ago there was a long series of articles in Radio-Electronics magazine about a robot project, called the R-E Robot. These articles have been reprinted in the Intel Embedded Control Applications annual for 1988. The controller was based on the 80188 chip on a custom controller board. All components including the board were available from vendors listed in the articles. The project robot was relatively inexpensive and structurally robust, but it had an arm that resembled a miniature fork-lift and the controller was set up to be programmed in Forth. I would say that the basic design needed enhancement but had potential.

There is a company in Dallas, New Micros, Inc., that sells a line of quite small single board computers based o nthe F68HC11 single chip computer. They also have been designed for programming in Forth. The boards are relatively inexpensive.

I have seen some other Forth related hardware that could be useful in designing a robot. I have found a very good public domain version of Forth, FF Forth, that uses standard MS-DOS files instead of blocks. It includes a big library of Forth "words", plus source code for the entire system, which is nice. Forth is a little odd, but it is something that could be valuable. I think that C, Modula-2, or other Algol-like languages are preferable, if they can be used with the controllers that might be available.

Regarding vision systems for the Hero, you might consider basing such a system on one of the single board computers based on the 80x86 family. There are some based on the 80286 that are about the same length and width as a 5-1/4" disk drive Their cost is a little more than a regular PC board with the same configuration. You should be able to mount the board on top of the camera, and use it to do all the work of image processing. It could send data or instructions to the robot's computer via the serial port. Since you would not be sending the images, you could probably get by very well with 9600 baud. A small camera, a disk drive, and the computer should not be too large of a package to mount on the Hero.

This would seem to me to be a better solution than trying to use the Hero's own computer for image processing. I imagine that this has already been tried by someone, and I would be interested in knowing how it turned out.

David L. Barrett
Route 1
Windom, TX 75492

Contact the company below for information on their single board computers. You will receive detailed information, pictures, schematics, and price information. The computers run about $200 to $300.

New Micros, Inc.   1601 Chalk Hill Rd.   Dallas, TX 75212.

CCD Access:

By: The Journal group.

ACCESS GRANTED!

This is prelude to a series of columns dealing mostly with the Computer Council of Dallas. It is written by folks in the CCD--specifically, the "Journal" wing of the CCD Publicity committee. Our intention is to provide your group's newsletter with a monthly article. We've asked all the groups with newsletters to participate. We have several good reasons for making a monthly column contribution.

We have a need for communication within the CCD membership (that's you). Our aim is to get help from you that will improve Council operation.

Second, there seems to be enough interest to support a regular column on the Council and all the groups involved. We've begun to discover that our community of users is really interested in the CCD, from its past to its future plans. You want to hear why we do things certain ways, to know how it all works. This column will give you a chance to see. It should supplement any reporting you get from your regular council representatives.

The third reason is that we can clear up some misconceptions newcomers may have about the CCD, its relation to the groups, Infomart etc. While we're at it, our articles can tackle generally user-group related subjects.

Four, we think we can add in something Council affiliation has always promised: better inter-group communications. All of us meet in the same place on the same day. We want to promote a sense of unity of purpose among all users.

So now you know: we have high goals, and this column should help us to achieve them. Before the CCD can grow further, more people will be directly involved and aware of its activities.

The column is called "Access:" because you'll get to hear what the CCD truly is all about. If you want to know more about our projects, we invite you to ask us. We're happy to share information (that's our job). We want you to share in this communication resource.

So that's what this column is doing--we're making you a part of the inner process we've begun. "Access:" will explore and explain the who, what, and why Behind the CCD and its community of users.

Any feedback, comments or suggestions should be forwarded to:

CCD Publicity   1950 Stemmons Freeway   Box 277   Dallas TX 75207.

FROM THE LIBRARY

by Stan Spielbusch

If you have a program to submit, put it on an MS-DOS format disk (double sided, double-density standard format) and bring it to the meeting or send to Stan Speilbusch (address on membership form).

We currently have 5 disks in the library -- a HERO-1 BASIC disk, a HERO-2000 BASIC disk, a HERO-1 Assembler disk, Loren Heiny's EyeSight program, and Loren's Sonar Mapper.

If you want a copy of a disk, the best way is to bring a blank, formatted PC-DOS/MS-DOS disk to the meeting and trade with me there. If you forget to bring a disk, we will have to collect $2.00 per disk. Mail-order -- $3.00 per disk -- no need to include a disk with order. Send orders to Stan.