THE ROBOT COMPANION

the newsletter of the
Dallas Personal Robotics Group

February, 1988

****** NOTICE *****

Notice to members: Renewal time is coming up OR PASSED for many of us. The mailing
bel on your newsletter now contains the expiration date of your membership. If you do
t renew your membership within 1 month of this date, your name will be removed from the
iling list. For example, if the date on the label is JAN88, then January will be your
st newsletter unless you renew before the February newsletter is mailed.

JANUARY MEETING MINUTES

Elections for club officers were held. The new officers are:
        President - Bev Bryant   Vice-president - Ed Rivers
        Secretary - Brian Vaceluke   Treasurer - Walter Bryant
    In addition, Stan Spielbusch (that's me) "agreed" to continue as newsletter editor
d program librarian (and thus I escaped the presidency).

SIGs - (Special interest groups)! We now have official SIGs in our club. There are 3
Gs, each with a "leader", or coordinator:
HERO 1/HERO Jr. -- Greg Oliver
HERO 2000   -- Walter Bryant
Homebrew/Misc.   -- Brian Vaceluke

The leader of each SIG will be responsible for coordinating projects of interest to
ch group, encouraging people to keep up their interest, and (hopefully) write or have
meone write an article for the appropriate newsletter columns.

Infomart -- we are officially meeting at infomart for our monthly meetings from now
. If possible, however, our user's labs will now be held at the Heathkit store.

Ed Rivers demonstrated the Movit that he got working. There are still a lot of
nknowns" about it, so maybe the next experimenter can learn more about it (and perhaps
cument any of the known instructions?).

New members -- a few new members joined at the meeting: WELCOME!
        Dub Dublin (Irving)
        Ron Smith (Garland)
        Robert Murphy, Jr. (Irving)

I would like to note that their primary interest is in homebrew!

d Business
    Report of IBM User's Demo
easurer's Report
    Membership Renewal
    Brief Review of By-Laws
w Business
    Birthday Party in April (see President's Corner)
mos
    Videotape of Robotic Navigation   Stan Spielbusch
    Walter Glod's "WORDS" EPROM   Greg Oliver
    Videotape of Robotic Vision   Walter Bryant
    Update on Robot Assembler   Ed Rivers
    Videotape of Robotic Communications   Bev Bryant
G Meetings

PRESIDENT'S CORNER

by Bev Bryant

Well, folks, we're playing with the big boys now! Our next meeting will be at fomart and I'm really excited. How about you?

And what does it mean to the club? For one thing, I think it will mean a lot in rms of membership. Not only am I anticipating a sharp rise in membership, I am pecting these new members to add a lot to the club technically. But some responsibility mes along with this privilege. A rise in membership will mean that we will have to nduct our meetings in a more orderly fashion. For those who can locate a copy of the laws, a quick perusal will reveal that our club meetings are supposed to be held using rliamentary law as defined by Robert's Rules of Order (no, my middle name is not bert!). If you are not familiar with Mr. Robert, don't feel alone. I had to go out and y a copy just last week. In order to make our meetings go more smoothly, I am going to y to have an agenda in each newsletter. If you have something to present at the next eting, please let me know as soon as possible. If your demo doesn't make it into the enda on time, please try to get to the meeting early and speak with me about it. I will corporate it then, if possible.

Since we seem to be entering a new phase, we probably want to rethink our goals and jectives. To improve our image as a serious club, we need to improve the documentation our programs. To this end, I am asking Stan to bring listings of club programs to the eting. When we break into SIGs, the SIG leaders will try to determine who wrote the ograms. If the programmer owns up to it, he will be asked to provide documentation. If e programmer cannot be located or determined, a SIG member will be asked to take the sting home, determine its purpose and document it. I know this is a lot of work and I ow how much we all hate to document but it is a necessary evil. You'll appreciate it en you try to run someone else's program.

The SIGs need to develop their own goals and objectives. They will probably want to ainstorm about this at the next meeting. Bud Collins has been talking for quite a ile about having a birthday for the robots. Since the club anniversary is in April our years this April), we could have a birthday party at the April User's Lab and bring ke and ice cream. Think about it and we'll discuss it at the meeting. See you there!

IBM DEMO

by Greg Oliver

Tuesday night, Feb. 2, a few members from the DPRG were present at the monthly meeting of the Mid-Cities PC Users Group. Bev Bryant introduced the group, and then Walter Bryant demonstrated his Hero 2000, Ed Rivers showed his remote controlled Hero I, and Brian Vaceluke discussed his Home-Brew. Murphy's Law came into play, and Brian had trouble with his Apple II, which he uses to control his robot. (What could be more appropriate at a PC users group than a bad Apple?)

Walter gave a slightly modified demo of the program he and Bev wrote, including the Hero doing his impression of the robot from Lost in Space, which always goes over big.

One member asked what we did with our "$3000 TOY", once we had it assembled. We replied, the same and more that you can do with your home computer! Try getting your 80286 AT and color monitor to teach your dog tricks! So there!

OF SPECIAL MENTION

The Fort Worth Museum of Science & History will have an exhibit called "Robots & Beyond", running Feb. 12 through May 1st. Walter Glod, of the Hero Resource Exchange, has mentioned that his group will have a display of HERO 2000's there! He has also requested that we express our dissatisfaction to the curator if the HEROs are not operating when we visit. In his words, the HERO 2000 should not take a back seat to industrial robots!

I have received a nice letter from Loren Heiny of Arizona. He is a robot experimenter, and has been involved in some research projects at Arizona State University. He also sent part of an article about one of their projects, which I have reprinted on the next page. Once again, I realize that there are a lot of 'us' still in hiding out there! Glad to hear from you, Loren!

HACKERS AND HOMEBREWERS

by Stan Spielbusch

A suggestion was made at the last meeting to start a CLUB homebrew project. Anyone interested could help in the design and construction (and let's not forget programming!) of the robot. The club has a fair amount of money to get this started, plus I would suspect that many of the members would donate a lot of the materials necessary. Speaking from experience, I know that homebrewing can be a long, lonely battle. If we all join our talents (and materials), we could whip up something fairly quick. A club-built robot would make an excellent demonstration of our group's functions and abilities, as well.

I have received some literature from a company called DataBlocks (they are also one of our members). They produce a modular control system, similar to the modules I wrote about before. In addition to standard CPU and I/O 'blocks', they have floppy controllers, CRT controllers, Speech synthesis, RAM-disks, A/D and D/A converters, and an EPROM burner. These are all stackable modules. Most modules are in the $100.00 to $200.00 range.

For more information, write to: DataBlocks, Inc.
579 Snowhill Road
Alamo, GA 30411
1-800-652-1336

Application Corner

The Wheelchair Robot

By Ron Pronk

The question: What can and cannot an autonomous robot do? To find the answer, you build one and test it in an actual environment, right? Wrong, as far as most researchers are concerned. The complexity of an autonomous robotics research project usually means that millions of dollars are required to build either a working model or an actual robot. Several millions of dollars more then are required to test and debug the software until—if ever—the robot operates effectively.

For this reason, the typical way to study robotics problems is by developing practical simulations. But even the development of leading-edge robotics simulations can run up a bill in the millions of dollars. And the bottom line is that a simulation is a poor substitute for a working robot.

Richard Madarasz, a professor at Arizona State University, in Tempe, knew the bottom line and didn't like it. So three years ago, he and a group of robotics and automation undergraduate students set out to rewrite it. Madarasz realized that most undergraduates who wish to study artificial intelligence are forced to duplicate projects set forth in textbooks, which leads to an extremley limited learning environment. In response, Madarasz decided to conduct his robotics class by having students attempt to design and build some-

The Wheelchair Robot–Ready to Roll

thing—anything—that would apply the concepts they were studying.

The result was Whacky, a robot that you might say has dared to go where no robot has gone before. Whacky is an autonomous, or mobile, robot built by a group of five students, who accomplished all of their work with a total out-of-pocket outlay of about $800. When Whacky is plugged in, it accepts a classroom number as its destination, rolls down a university hallway in search of the room, avoiding walls and other obstacles, and stops when it reaches its goal.

The full name for the robot is Autonomous Vehicle for the Disabled

(AVD). But the nickname Whacky is perhaps a better name because it seems to describe the appearance and early performance of the AVD. Whacky looks a little like, well, a wheelchair with elephantiasis. Also, in the early stages of development and debugging, Whacky had an annoying tendency to attack innocent walls and, occasionally, people. But most of these and other bugs were corrected during Whacky's brief lifespan.

Yes, brief lifespan. Whacky is now dead, a heap of electronic and mechanical parts dismantled after three years of steady development. (More about the

(I didn't get the rest of the Article)

4

by Greg Oliver

I have installed the "WORDS" ROM from Walter Glod, dumped the code and disassembled
. I have found a bug in the routine: byte at $8138 is $A1 and should be $81. This is
e address of a speech routine that says "Good Night", but instead, speaks whatever
rbage is in memory at $A13D. OOPS! I will be showing the ROM at the next meeting.

Since the ROM uses up a 4k slot, yet only has 1k of program, how many of you would be
terested in compiling another 3k of general purpose routines, adding them to the
isting code, and burning a 4k ROM? Let's discuss this further at the next meeting, or
 you have any programs you would like to submit, send them to myself or Stan. Any
eas?

note from Stan:
 I received a note from Niel Bratteli, in which he included the advertisement below.
ailable from C.O.M.B. Direct Marketing Corp., 1405 Xenium Lane N., Minneapolis,
nnesota, 55441-4494 (1-800-328-2190). This is sort of a 'club' type organization, so
e about 'joining' before you send any money to them.

HERO 2000 NEWS

Well, if no news is good news...

FROM THE LIBRARY

by Stan Spielbusch, Librarian

I received an interesting program from Clay Rehm of Wisconsin. It is written in Turbo Pascal, and converts Wintek BASIC programs into S1S9 code, so they may be entered directly into HERO 1's keypad, instead of having a computer or terminal attached. I do not personally see the utility of this (unless you don't have a computer to attach, but then how could you run the converter?), but perhaps a HERO 1 owner could shed some light. In any case, I will put the program on the HERO 1 Assembler library disk. There is a nice documentation file and a couple sample files, but the program source is not on disk (just the .COM file). He did send the hard-copy, so if anyone likes to type...

Greg Oliver has transferred the "WORDS" EPROM and some HERO 1 BASIC programs from Walter Glod to disk. These should be in the library soon.

. . . .

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 Spielbusch
2404 Via Barcelona
Carrollton, TX 75006

****** Please ***** include a description of the program, either as comments in the program or as a separate .DOC file. I don't have the time to study each program to figure out what it does!

When you submit a disk, you receive credit for 1 disk in return. Let us know which one(s) you want, or if you just want your original disk back.

We currently have 2 disks in the library -- a combination HERO-1 and HERO-2000 disk (all programs in BASIC, text format), and a HERO-1 Assembler disk (see October '87 issue for details).

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. Hard-copy listings of the programs will soon be available if enough people are interested. Mail-order -- $3.00 per disk -- no need to include a disk with order. Send orders to me (address above).