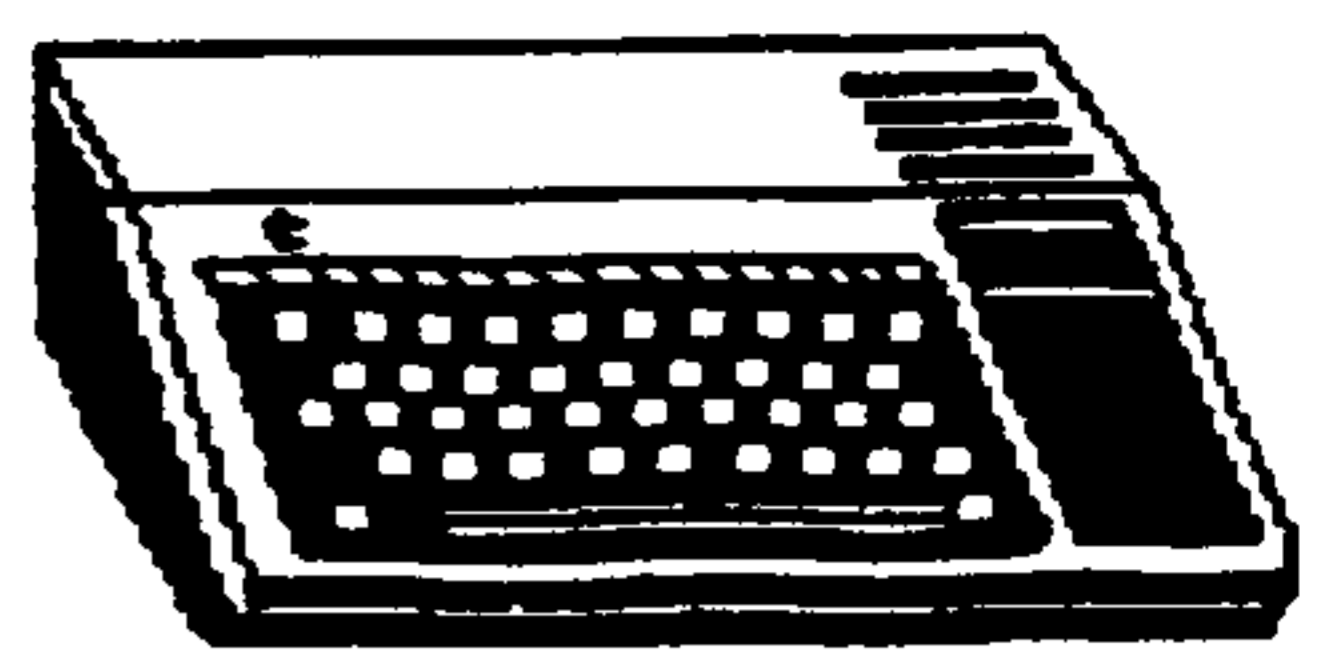




CLEVELAND AREA TI-99/4A USER GROUPS MAY 1993



OFFICE	TI-CHIPS	MEETINGS
CO-PRESIDENT	Glenn Bernasek 238-6335	10:00 AM
CO-PRESIDENT	Virgil Thomason 1264-7779	N. Royalton
TREASURER	Lin Shaw 235-3912	County Library
MEMBERSHIP	John Parke 331-2830 4172 W. 217th St. Fairview Pk., OH 44126	State Rd. 50. of Route 82 1/4mi <u>EVERY THIRD SAT.</u>
SECRETARY	Tim Bodenniller 234-4297	
DISK LIBRARY	Matt Andel 676-9759	MAY 8, 1993
TAPE & MODS	John Parke 331-2830	(3-5:00 P.M.)
HARD COPY	Harry Hoffman 631-2354	June 19, 1993

OFFICE	NORTHCOAST	MEETINGS
CO-PRESIDENT	Ken Gladyszewski 1357-7274	1:30 PM
CO-PRESIDENT	Walt Ryder 921-8223	Euclidian Room
Treasurer	Frank Jenkins 283-8526	Euclid Sq. Mall
MEMBERSHIP	Martin Smoley 1-257-1661 6149 Bryson Mentor, OH 44060	E.260th off I-90 (South) <u>EVERY THIRD SAT.</u>
SECRETARY	Bernie Zuckerman 381-4088	
DISK LIBRARY	Martin Smoley 1-257-1661	MAY 22, 1993
TAPE & MODS	Frank Jenkins 283-8526	(1-4:00 P.M.)
HARD COPY	Dick Alden 1-352-9172	June 19, 1993



From the Editor's Desk:



Hi Tiers,

This has to be the fastest this Newsletter has been put out since Harry took over! The CHIPS meeting is May 8th and I don't want to leave them without the news before their meeting!

I want to thank my friends for keeping in touch and wishing me well. The operation was a success, I think! At least I'm walking around and sitting at my favorite toy keyboard. ha!ha!

There are some very good articles in this letter, because of members like Glenn Bernasek, Bernie Zuckerman, and Ken Gladyszewski.

I've included a page from Bits, Bytes & Pixels, the LIMA Newsletter, for the people that are going there. This way they can plan what seminars to attend and see how many vendors are available. One such vendor is our own infamous Ron Markus' [RANCHARGED COMPUTERS]! Happy

Birthday --- RON. I see that Ron & Chris Bodenniller have a table together, Mmmmm, interesting!

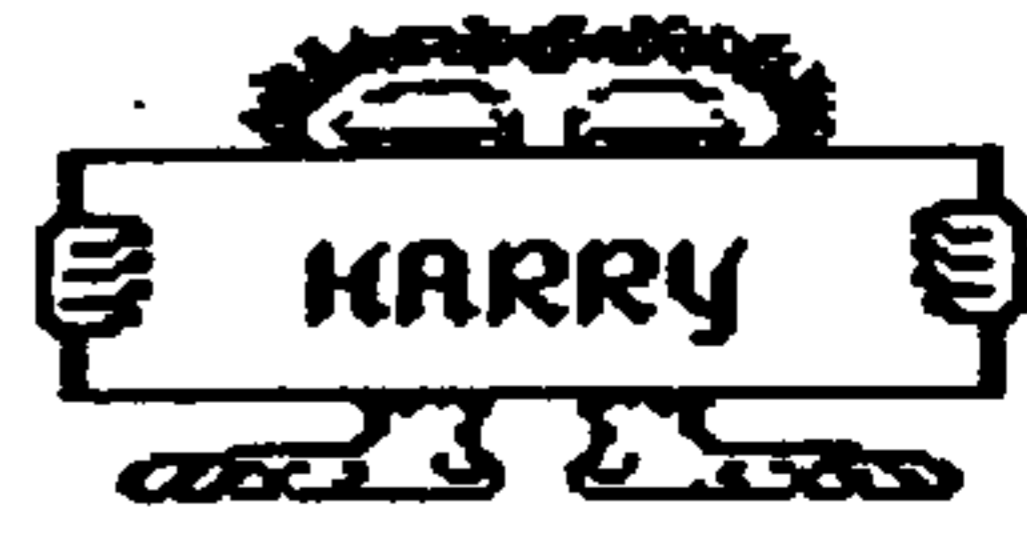
CHIPS & NORTHCOAST each have tables, hopefully, together.

There are some listings of Hanfest/Computer fairs for those that are interested. A great way to pick up some extra stuff, sometimes very cheap!

It's SPRING at last, but a bad time for planting season when you just had a hernia operation. The Roses will have to wait a couple of weeks! Isn't it great to see all that is blooming and it is even a pleasure watching the grass grow. Did I say that?

I forgot to mention Tim "Chris" Bodennillers demo at Lima. He will be talking about "The Current Status of Game Programming for the TI". It should be pretty informative, as Chris is already making his mark in the "Game" field.

Well, see you at the next meeting,



BITS, BYTES & PIXELS

LIMA 99/4A USERS GROUP



May 1993

Volume 9, #5

Pre MUG CONFERENCE ISSUE

MULTI USER GROUP CONFERENCE, AN ALL TI/GENEVE EVENT
(information as of April 17)

COST: FREE

LOCATION:

Reed Hall, Ohio State University Lima Campus. Turn North off of state route 309 2.5 miles east of the intersection of 309 and 175. Many motels are at this intersection.

GROUPS AND DEALERS REQUESTING TABLES:

Asgard

Genial Computerware

PC emulator

S&T software

Crystal Software

Cecure Electronics

D. Wright Stuff

L. L. Conner Enterprise

Competition Computer

MUNCH (self help video tape on console maintenance)

Bud Mills Services

Harrison Software (debuting "The Ultimate ACCEPT AT")

Recharged Computers

Hoosier User Group

Cleveland User Groups

C.O.N.M.I. User Group

CinDay User Group

New Horizon User Group

Los Angeles User Group

Tigercub Software

Lima Ohio User Group

OH MI TI User Group

FRIDAY MAY 14 4PM-8PM:

Set up tables, chairs and video equipment. Free copies can be made of available Lima library disks by a representative of any user group as soon as computer systems are set up. This is an informal time period to meet with each other and help us set up stuff. Meeting rooms will be available if anyone wants to organize discussion sessions.

SATURDAY MAY 15: 7AM. Doors unlocked. More time to set up exhibits. Copies can be made from Lima UG software library.

9AM. Room 150. Seminar by Barry Traver

10AM. Food service opens with coffee and rolls available.

10AM. Room 150. Seminar by Jack Sughrue, "The Teaching

TI: Our Computer As An Educational Tool."

11AM. Food service will have custom sandwiches available for lunch.

11AM. Room 150. Seminar by Harry Brashear, "FIRST DRAFT, IBS, memory expansion hardware, and other products from ASGARD."

11:30 Room 101. Seminar by Mike Maksimik.

NOON Room 150. Seminar by Bruce Harrison, "The Ultimate ACCEPT AT, and other products from Harrison Software.

12:30 Room 101. THE MULTI USER GROUP CONFERENCE, a meeting of user group officers to discuss common problems and solutions.

1PM. Food service closes.

1PM. Room 150 Seminar by Bud Mills.

1:30 Room 101. Seminar by Tim Bodenailler, "The Current Status of Game Programming for the TI."

2PM. Seminar by Mike Wright, "The PC99 project, software emulation of a 99/4A on an IBM compatible."

3PM. Room 150 Seminar by Don Malden, "Hardware for the Geneve and 99/4A fr CECURE Electronics."

4PM. Room 150. Seminar by S&T Software, "BBS and Terminal Emulation software the TI."

6PM. Conference closes. Copying from Lima software library ends. Clean up time.

8PM. SPECIAL SURPRISE GIFT FROM THE LIMA USER GROUP TO THE TI COMMUNITY. Details will be available throughout the day. It wouldn't be a surprise if we told you now.

VIDEO TAPES:

All seminars in rooms 150 and 101 will be video taped. A "roving reporter" will cruise the exhibit areas interviewing people and creating a video record of all display and sales tables. Any user group or individual who is a paid member of the Lima User Group can obtain a copy of these videos by leaving TWO video tapes AND \$2.50 for postage, OR by leaving \$10 (which includes the cost of media and postage) clearly labeled with a return address at the Lima table. (If requests for seminars increase it may be necessary to go to three tapes + \$3.75 or \$15.)

DONE

MOST COMMON QUESTIONS ASKED OF CHARLES GOOD THESE DAYS:

Q: Have you heard anything recently about the 40 column Funnelweb v5 editor?

A: No.

Q: Will the 40 column Funnelweb v5 editor be available at the MUG Conference?

A: I don't know.

NOT DONE YET

The meeting was called to order at 10:10 with 15 people attending. Lin reported that our balance is moving upwards. Also, the check that we sent to the Newsletter BBS is finally back.

Glenn had a word of caution for people who try to replace Ni-cad batteries with Lithium ones. For example, in your Ramisk! You must always change the resistor to a diode to prevent current from being forced back into the battery. Lithium batteries that are forced to recharge may harm your system, or they may even explode. Be sure to run other rechargeable batteries down completely every so often, so that they will be able to charge up to their max. Thanks for the tips Glenn!

According to John, our membership is holding. Vulcan computer also sent us a letter requesting us to resubscribe, but because they no longer support our computer, we will not be resubscribing.

Matt has the 10 disks for the raffle, they were some of the disks featured in last month's newsletter. He also had the disks that I ordered.

Harry could not be here, but he sent us a nice letter, and he also enclosed letters from Jim Peterson, and from Cadd electronics. He needs some volunteers to help copy disks at Lima, and he requests our prayers for a speedy recovery.

Jim Peterson says that Tigercub is not doing as well as he would like. He sent us three disks for our club to use. They have some of his articles for our newsletter, and there is a copy of his PD-Library #6 listing on disk. I have plenty of order forms, and he has plenty of great software. Please take a look at his catalog at the next meeting, if you didn't get a chance this time. If you already have a copy of his catalog, I hope you will take advantage of his great software deals. I am certainly

looking forward to seeing him at Lima.

Carol demoed a labelmaking program that she wrote. It certainly had some impressive sprites on the title screen. The title screen alone would make an interesting example on how to control sprite motion, but now on to the meat of the program. It is very friendly, and allows you to save and load labels. It uses superscript, subscript, and even condensed to cram all kinds of text onto your labels. This looks very handy for even putting disk catalogs on your disk. It allows you to get 25 lines, each 21 characters long onto a label. In condensed you can get 42 characters per line. You may get a few less lines depending on the size of labels you wish to use.

Les demoed a program that uses 1 dimensional arrays (a bunch of variables in a list) to make music. The program then changes the value of all the numbers in the array (list) and plays the music again in a different key. The program also displays the list so you can see how the numbers have been changed. This has been another in an interesting series of demos on using variables in your programs, and understanding how they work. It was certainly a fun way to learn more about arrays.

I gave a demonstration that is paving the way to Lima. What I will discuss then, The Future of TI Gaming, will certainly be of interest to all you graphics and sound fans. I hope you will be able to attend.

Glenn ended the meeting, and won the raffle. Hope to see you all again on the SECOND Saturday of May from 3-5 PM. I am also looking forward to a chance to see some of the other club's members at the meeting.

Respectfully submitted,

Timothy C. Bodenmiller



TI-CHIPS: Come to the Euclidian Room, at the Euclid Sq. Mall, E. 260th, just south of I-90.

MAY 22nd at 1:00 P.M.

Make it to two meetings in ONE month, and have fun with our sister club, the NorthCoast 99ers!





NORTHCOAST SSYS

By BERNIE ZUCKERMAN



The April meeting of the Northcoast TI User's Group was called to order by Co-President Ken Gladyszewski at 1:30 P.M. in the Euclidian Room of the Euclid Square Mall. There were 17 members present. Treasurer Frank Jenkins gave the financial report for the period ending April 17, 1993. Taking into account income of \$136.37 and expenses of \$77.80, an increase of \$58.37 since the last meeting's report. The report was accepted as presented.

Frank read a letter from Jim Peterson of Tigercub Software thanking the club for the many years of sending him the Newsletter and apologizing that he no longer can reciprocate by sending out his listing of available programs. His business cannot support further distribution. Occasionally he will distribute his TIPS but he enclosed a disk containing the last three TIPS and several articles he has written during the last year or so. He also sent a copy of his last TI Catalogue with an order form.

Under old business a discussion followed regarding the use of lithium and/or rechargeable batteries for the club's randisk. There was some confusion brought about by the minutes of the last meeting specifically regarding this problem. Lithium batteries are NOT re-chargeable. Marty had reported that on the club's randisk we were losing the operating system. It appeared that when the system was on everything appeared fine, but when it was dumped, the battery was not sufficient to maintain the operating system. The problem was with the lithium battery - when it was unloaded the voltage was up to where it was supposed to be but when a load was put on it, the voltage went down and the randisk crashed. We are now using rechargeable batteries and everything is operating normally.

A further discussion was held regarding Jim Peterson who has worked a long time with the TI community and should be recognized for it. Several suggestions were made such as ordering disks from him in support (\$1.50 per disk plus .50 for mailing); circulating or making a copy of his catalogue so that members can order disks; the club buying disks from him for our library. It was pointed out that Jim's library consists of other peoples fairware and that our library contains most of his catalogue.

Regarding the library, as far as can be determined, members have never provided disks - they have come from downloading from bulletin boards or other sources. It was suggested that the library be brought to each meeting so that members can take out disks as one takes books out of the public library and return them at the next meeting. This and other suggestions will be discussed with Marty who has much experience with the use and operation of the

Library.

It was then decided to support Jim Peterson as we do the McGoverns of Australia (funnelweb). A motion was made, seconded and passed to send Jim Peterson a donation of \$25.00. Also he will be asked for a disk of his library so that it can be made available to those members who are interested. Ken also noted that he might be able to get it from Jim at the Lima Conference in May.

There are several members planning to go to the Lima conference and others are urged to attend. At the next meeting, Marty Snoley will explain the TIBASE material covered in the last Newsletter. It was specifically on how the membership renewal letters are produced using the data in TIBASE without intervention by the operator. (That's why the letters are signed "MARTY'S TI") The only thing it does not do is put the letters in an envelope and put on the stamp. Marty is waiting for Ken to teach his TIROBOT to do this job for him.

The next NORTHCOAST meeting is the FOURTH SATURDAY in May - May 22. The next CHIPS meeting is the SECOND SATURDAY in May - May 8th.

While waiting for Chuck Poulin to prepare the hardware for his demonstration of his MIDI (Musical Instrument Digital Interface) Ken told of his many projects for the TI and his experience at the Madison Namfest. He was able to pick up items that generated at least three more projects for the TI.

This included two 16 digit LC displays which he was given and which he plans to operate through either the parallel port of his PE BOX or from the joystick port. Chuck then demonstrated how music can be transcribed from sheet music once the coding is mastered and by use of the MIDI cause a keyboard to play the music, without a person. This technique uses the TI-WRITER format to list the coding that is involved, and activates the MIDI through the RS232 port. Chuck first demonstrated a single "voice", which is a single note, as compared to a chord which consists of several "voices" played at one time. By coding the TI as transcribed from the sheet music, the keyboard played the music Chuck programmed.

Jerry Reising then demonstrated his own label writing program. He wrote three programs - one to send printer codes to the printer, one to print out five or eight line labels, a third to address envelopes and put in return addresses. Jerry demonstrated all the tricks he can do with the label program, printing out either four, six and eight line labels.



RECHARGEABLE LITHIUMS IN THE RANDISK?

By Glenn Bernasek
TI-CHIPS Cleveland, Ohio

First of all, allow me to qualify myself on the subject of lithium battery systems and portable power systems in general. I am employed as a Senior Laboratory Technologist specializing, for the last eight years, in rechargeable lithium fundamentals. Twenty years of my career have been devoted to the research and development of lithium battery systems.

I would like to present the following information, and (at the same time) hope to clear up some misconceptions.

1. Most commercially available lithium batteries are essentially NOT RECHARGEABLE. Some rechargeable lithium batteries have been marketed, but they were very few and far between.

2. Primary (dischargeable only) lithium batteries have been developed for two reasons. They have the highest energy level per weight and an extremely long shelf life (>95% of the original power is left after storage of more than three years). This means that a lithium battery has an expected useful life of 5 to 10 years, depending on the level of usage.

3. It takes a special charging unit, yet to be designed and marketed, to recharge lithium batteries. Without such a device, recharging lithium batteries is highly inefficient at best.

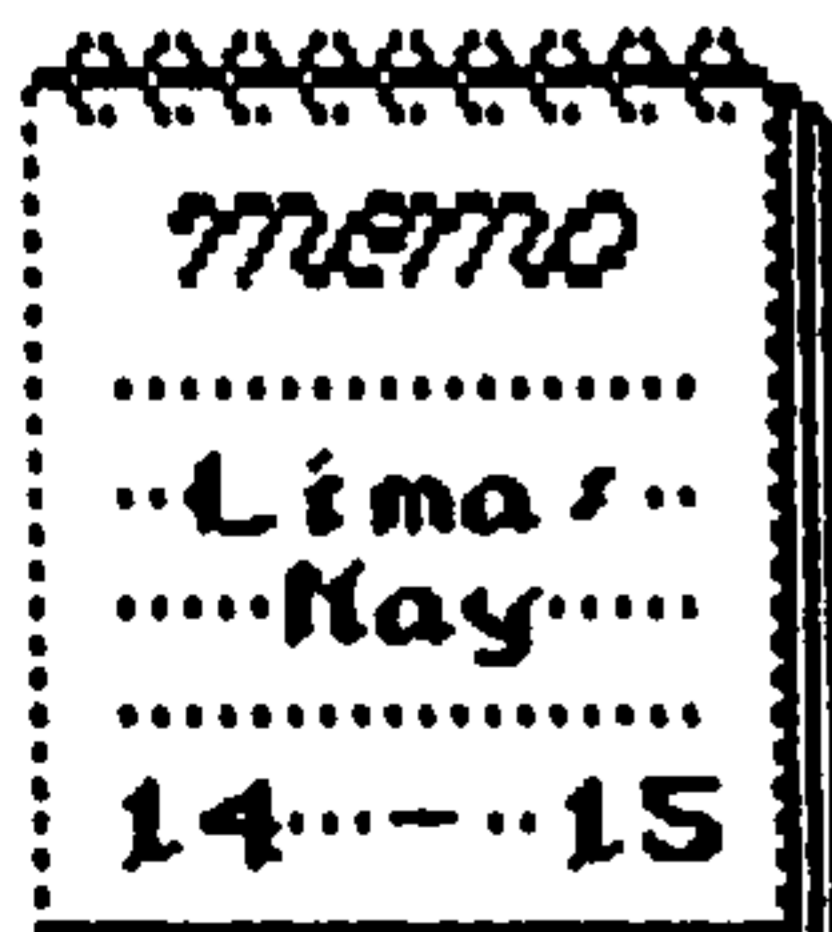
4. The manufacturers of Randisks include in their assembly instructions, directions how to wire the board one way for rechargeable Nickel-Cadmium (NiCd) batteries and ANOTHER WAY for a lithium battery. This is because a voltage divider type circuit is present on the

board, and (if it is wired for NiCd installation) it will provide a charging bias voltage to the rechargeable NiCd batteries. However if a lithium battery is used, the PROPERLY WIRED divider circuit will BYPASS the lithium battery, and allow the AC converter to power the board. DO NOT REPLACE NICKEL-CADMIUM BATTERIES WITH A LITHIUM BATTERY WITHOUT CHANGING THE CIRCUITRY PER MANUFACTURERS INSTRUCTIONS! The lithium battery may be subject to shortened life if operated in a circuit not set for this system. This could also be HAZARDOUS to you and/or your computer! (Lithium metal batteries can burn under certain abusive conditions.)

5. Nickel-Cadmium (NiCd) batteries have what is called "Charge Memory". The system will only recharge to approximately 75% of the last discharge. Therefore the effective usable charge will be limited by the depth of discharge. If a NiCd cell isn't discharged very deeply, it will eventually lose its ability to recharge. This is why it is recommended that a NiCd battery be fully discharged periodically, and then recharged over night to maximum capacity.

If I may, I'd like to offer a possible solution to some of the "memory loss" problems experienced with the battery backed up Randisks. I know that I've been harping on the card edge contact problems. Well I've found a new problem in the operation of my Randisk. It seems that the chips in the sockets tend to come loose. I found that when I pushed them back into the sockets, my ROS didn't disappear. (I actually felt them "click" into place.)

In short, the power failures of the lithium battery may have been the fault of an incorrect usage, and the Randisk's "forgetfulness" may be caused by dirty, corroded or loose card edge and/or chip contacts.



TI-CHIPS and NORTHCOST 99ers
will have tables at the Conference!
Stop by and visit with us awhile,
and ask for our fresbes!

THE TI BURGLER ALARM

by Bernard Zuckerman

It all started way back in 1990 when I ordered a disk from the library. I don't remember the program I wanted but on the disk was a program written by R. E. Lumsden of Winnipeg, Canada that was called "BURGLARM". It used the joystick port wired to the perimeter contacts and

keyswitch of a house system. The monitor gave all the instructions and the resulting audio (beeps, noise, siren) were appropriate for a burglar alarm. It was fascinating to hook up and even more interesting to work out the logic. After a while, the disk was stored away and almost forgotten.

Last spring, my wife and I went to the White Elephant sale run by the Garden Center. She usually looks around at the kitchen gadgets and books while I dig into the camera, electronic etc. shelves. Lo and Behold !!! There on a back shelf, covered with years of dust was a TI-99/4A console - no cables, no power supply, no modules, no nothing - a bare console. How can a true T1er resist and for one dollar it was mine. "What in Heaven's name are you going to do with another computer?" was my dear wife's comment. "Oh, it probably doesn't work so I'll give it to Ken for parts, or I'll make it into a burglar alarm"

Wow! That idea came out of the blue. And the console worked fine.

But saying "make it into a burglar alarm" and making it work was another story. In its elementary form, a burglar alarm system consists of perimeter wiring with contacts (NO or NC (Normally Open or Closed)) at each door, window, etc. and a "keyswitch" to arm or disarm the system. The brains must be able to distinguish between a legitimate opening and a "break-in" and send or give an alarm when appropriate. In my case, the brain is to be the computer.

Lumsden wrote a program that makes the console into a burglar alarm "brain". It checks the perimeter, the keyswitch and provides delays for coming and going. The "call sound" command made all the noise, beeps, and sirens via the monitor, and the instructions were on the screen.

Well and Good. But I don't need the monitor if I'm

not at home, and I do not want to keep my PEBox on while I take my Hawaii vacation for three weeks. And I do want to activate my automatic dialer and call the police. So I set up the parameters of my project:

1. A stand alone console - no PE Box, no monitor, no modules.
2. It must be able to sound a siren or loud horn as well as communicate to me, the operator.
3. It must provide a NO contact which will close and start my automatic phone dialer.
4. It must signal me if the window or door is open or if it is not properly armed.
5. No joysticks allowed.

Well, I can eliminate the monitor by connecting the audio output to a free standing audio amplifier and speaker and use the "call sound" to send beeps, notes, songs, etc. as signals as to what is going on. A cassette will load the program and then be removed. But how do I get an output that will close a contact (energize a relay)?.

That's where Ken came into the picture. At one of our meetings I discussed the project with him and he picked up on it. Inside of a month he designed and built an electronic circuit which, on a "Call JOYST(2,x,y)" command energized a relay and closed a set of contacts. Elsewhere in this Newsletter he describes his circuit and how it works.

A audio amplifier integrated circuit (Radio Shack) worked fine and the program was modified (see attached) so that provided the brains. I broke one part of my original goal. Since I had a spare Speech Synthesizer I revised the program so that the computer tells me what to do. And it all worked!!!

BUT WHAT IF THE POWER GOES OFF?

MOTHER'S DAY - MAY 9, 1993 MOM

Remember Mom with a special visit,
a phone call, or a prayer!



HAMFESTS and COMPUTER SHOWS - 1993

For those not going to Lima, it may be interesting to visit some local show and pick up some bargains! I don't always have the latest info on these shows, but many of our members are Ham Operators and can give you up to date stuff on coming events.

From TI-CHIPS:

Les Isreal - 659 9636

From NORTHCOAST:

Harry Osterman - 871 2199

Tom Miller - - - 731 8647

Bruce Rodenkirch 1-928 7873

I'm sure there are others and hope they forgive my lapse in omitting their names.

May 16 - Lorain County ARA

At the Lorain County Community College. Exit the Ohio Turnpike at Rte.57, south to I-90, west to Rte.254,

west to Abbe Road (Rte.301), north to LCCC. For further info call:

Tim Lovejoy - 288 2761

May 16 - Henry County ARC

Defiance County ARC

Fulton County ARC

At the Fulton County Fairgrounds, Rte.108 (at Exit 3 Ohio Turnpike).

May 23- Twenty Over Nine Radio Club

At the Canfield Fairgrounds, Rte.46, Canfield, OH. For info call:

Don Stoddard - 1-793 7072

There is always a computer show listed in the PD, Computer section. Mostly in the Holiday Inns nearby. Looking for a Double Sided disk drive or, if you're very lucky, some actual TI equipment! Check it out!



Bernie's "Basic" Burglar Alarm Program via Ken G.

```

100 REM  BURGLAR ALARM PROG
RAM, ELECTRONICS BY KEN G, P
ROGRAM BY LUNSDEN, REV BY B.
Z.
-----
101 REM FILE BURGLARM4A - BA
SIC, NO VIDEO, SPEAKING AND
SIREN
-----
110 REM  Y IS KEYSWITCH; X I
S PERIMETER. Y=+4 K.S. CLOSED
; X=-4 PERIMETER CLOSED. 120
REM START WITH KEY SWITCH A
ND PERIMETER SWITCH OPEN.
-----
130 ENDEL=3000
-----
140 EXDEL=3000
-----
150 SKIPD=1
-----
151 SW=1
-----
152 CALL JOYST(1,X,Y)
-----
160 GO TO 440
-----
190 PRINT #1:"O K THANKS O K
THANKS"
-----
200 CALL JOYST(1,X,Y)
-----
210 IF Y=0 THEN 600
-----
220 IF SKIPD>1 THEN 250
-----
230 GOSUB 410
-----
240 SKIPD=SKIPD+1
-----
250 CALL JOYST(1,X,Y)
-----
260 IF X=-4 THEN 200
-----
270 REM THIS SITUATION CAN O
CCUR EITHER (1) LEGITIMATE O
PENING, OR (2)BREAK IN. SO W
E GIVE A FEW SECONDS BEFORE
ALARM IS SOUNDED.
-----
280 FOR ENTRDEL=1 TO ENDEL
-----
290 NEXT ENTRDEL
-----
300 CALL JOYST(1,X,Y)
-----
310 IF Y=0 THEN 390
-----
311 PRINT #1 :: "ALARM TRIPP
ED BE ALERT BE ALERT BE ALER
T"
-----
320 CALL JOYST((Y/4+1),X,Y)
-----
329 REM ALARM BROKEN SIREN
-----
330 FOR LOOP=1 TO 5
-----
340 FOR SIREN=700 TO 900 STE
P 10
-----
350 CALL SOUND(-99,SIREN,0)
-----
360 NEXT SIREN
-----
370 NEXT LOOP
-----
380 GO TO 391
-----
390 PRINT #1:"WELCOME HOME"
-----
391 END
-----
400 REM EXIT DELAY INITIATED
FOLLOWED BY ARNING PROCEDURE
-----
410 FOR DELAY=1 TO EXDEL
-----
420 NEXT DELAY
-----
430 RETURN
-----
440 REM CHECK PERIMETER. IF
O.K. CHECK KEY. IF NOT, RECH
ECK PERIMETER
-----
450 CALL JOYST(1,X,Y)
-----
460 IF X=-4 THEN 190
-----
461 IF SW>1 THEN 481
-----
479 REM PERIMETER OPEN WARNI
NG SOUND
-----
480 OPEN #1:"SPEECH",OUTPUT
-----
481 PRINT #1:"//40 500"
-----
482 PRINT #1:"DE PERINTER IS
OPEN SHUT THE WINDOW"
-----
490 SW=SW+1
-----
510 GO TO 450
-----
599 REM  KEY SWITCH OPEN WAR
NING SOUND
-----
600 PRINT #1:"DE KEYSWITCH I
S OPEN THE SYSTEM IS NOT ARM
ED"
-----
650 GO TO 200
-----

```

HARDWARE ASPECTS of a TI-BASED BURGLAR ALARM

When Bernie and I first talked about his desire to control an automatic telephone dialer using a bare console, used as a burglar alarm, he suggested using an electronic circuit to energize a relay when it "heard" the console make a siren sound. I told him I had seen circuits for this somewhere but thought I knew of a better and simpler way.

I had already used the pulses generated by the joystick port when a "CALL JOYST" command in BASIC is executed to control an analog-to-digital converter chip and thought about using the same pulses to control a flip-flop.

A flip-flop is an elementary building block in digital electronics and is the basis of all memory and counting circuits. It has two stable states and in its simplest form consists of two transistors cross connected so only one transistor is "on" at a time. The circuit is said to "flip" when the "on" transistor turns "off" and vice-versa. The method normally used to cause the flipping action is to apply a pulse to one of the two transistors.

In review, the joystick port consists of two outputs (pins 2 and 7) which are normally both at +5 volts with respect to the common of the console power supply. When a "CALL JOYST" command is executed, one of the outputs goes to -5 volts for 150 micro-seconds. If a connected joystick pushed in any direction, a switch in the joystick unit is closed and the output is connected to an input. The inputs are scanned and the program returns a value indicating joystick position.

In my early projects I used the 10 volt differential between the two outputs to fire a transistor which then produced pulses compatible with the integrated circuits I was trying to control. A transistor was used because only 100ma of current is available which is not enough to light a LED (light emitting Diode) in an Optocoupler - or so I thought!

Recently I discovered an Optocoupler (6N139) that requires only 1/2ma and it just so happens two of these devices can be interconnected to form a simple "FLIP-FLOP"! By executing a "CALL JOYST(2,X,Y)" command it will flip in one direction energizing a relay, and a "CALL JOYST(1,X,Y)" command will make it flip back de-energizing

the relay. At the same time the status of both the key and perimeter switches are returned in the X and Y values. The circuit shown was used to develop the concept and was used in Bernies demonstration. To be used as an actual burglar alarm, because of the likely distance between the computer and the switches, Optocouplers would need to be used as buffers.

The circuit as shown is for only one zone but it may easily be expanded to two zones by hooking each zone to a direction input and the keyswitch to the fire input and modifying the program appropriately.

I am working on an expanded version for three zones using two more integrated circuits (8 or more zones are possible using a different scheme) for use in my own home. Three zones would be nice because my house has three levels with an entrance on each and the computer could detect and announce the level on which the problem occurred.

I plan to remove the motherboard from a spare console along with the switching power supply and house them in a wall mounted metal box along with some gel cell batteries for program backup. The peripheral circuit shown would be powered from the 12 volts available at the modulator port thereby eliminating the need for a 9 volt battery. Stay tuned for an article about this in the future.

Too many ideas for projects - I can't decide which to do next! They're all fun but time consuming.

AS FURTHER READING I SUGGEST:

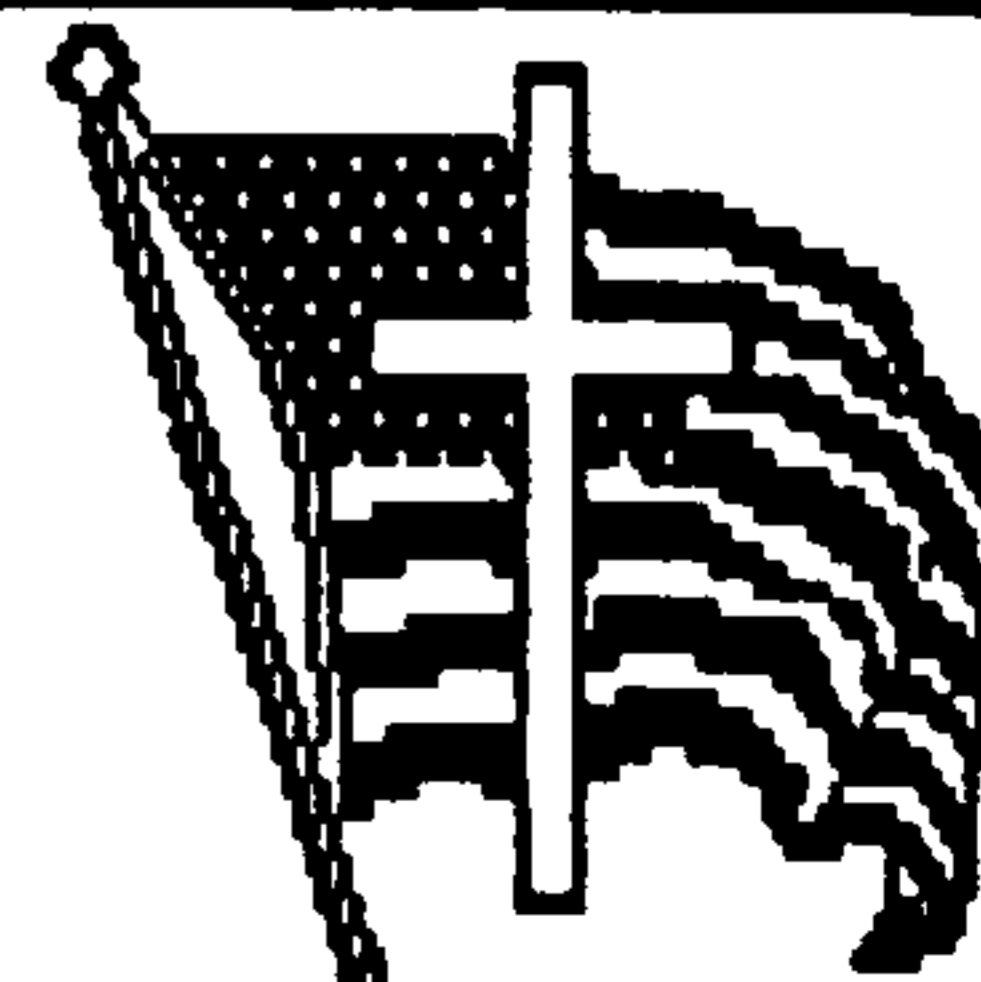
1. Home-Security Cookbook - Parts I & II by Ray Marston
Radio-Electronics Magazine - May & July 1990
2. Working With Flip-Flops by Ray Marston
Radio-Electronics - June 1987
3. Optocoupler Devices by Ray Marston
Electronics Now Mag. - Aug 1992

Editor's Note:

Bernie and Ken did this project without ever visiting each others homes. Two letters, 4 phone calls, and discussions after club meetings! Most of these projects use a bare unmodified console, a "BASIC" program, and a few external components. How about that!!

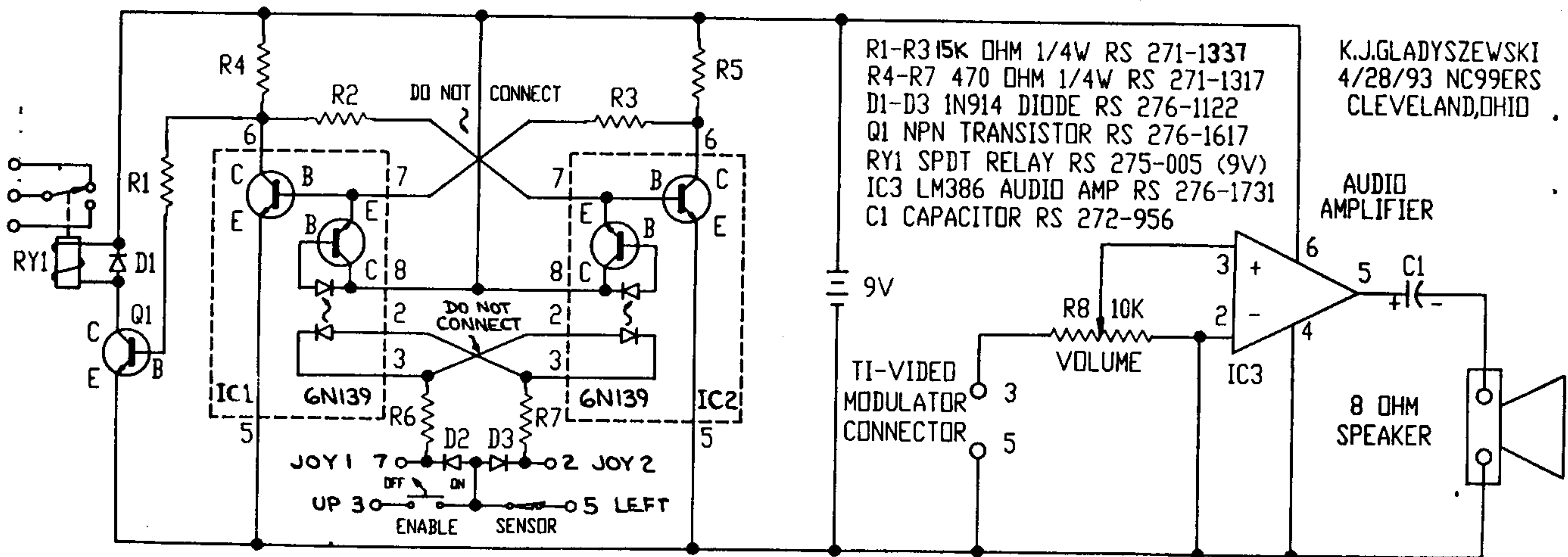
MEMORIAL DAY, MAY 30TH, 1993

A Time for reflection and remembering
Loved ones who have passed away. Ask for
their Prayers!

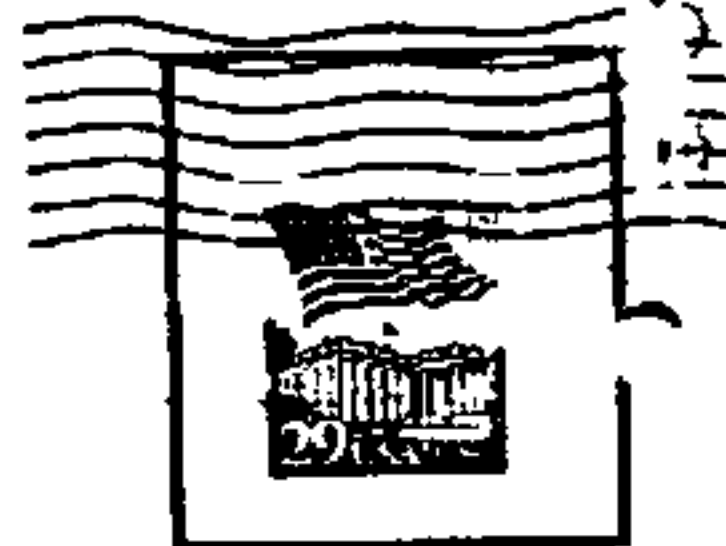


SCHEMATIC FOR TI BASED BURGLAR ALARM

(PROTOTYPE FOR DEMONSTRATION PURPOSES ONLY)



Cleveland Area User Groups
 % Harry Hoffman
 3825 Troubridge Ave.
 Cleveland, OH 44108-1348



**Check your Expiration Date
 This may be your LAST issue!**

FIRST CLASS

FIRST CLASS

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FIRST CLASS

Due to the rising cost of the Newsletter:
 Newsletter only cost is \$12.00
 Full membership price - \$15.00 w/library priveleges.
 Join either club. See front cover for membership chairs.

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