

# MICRO USER News.

REGISTERED FOR POSTING AS A PUBLICATION --- CATEGORY "B"

APRIL 1981  
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THIS NEWSLETTER IS A MONTHLY CIRCULAR PRODUCED BY THE ADELAIDE CLUB MEMBERS WHO HAVE A PARTICULAR INTEREST IN TANDY COMPATIBLE HARDWARE AND SOFTWARE. THIS GENERALLY INCLUDES THE TRS-80 AND SYSTEM-80 BASED EQUIPMENT BUT OTHER INTERESTED PERSONS ARE WELCOME TO ATTEND THE MEETINGS



NEXT MEETING..... \*\*\*\*\* 7.30 PM THURSDAY 2ND APRIL \*\*\*\*\*  
LOCATION..... \*\*\*\*\* SERVICE CLUB CENTRE \*\*\*\*\*  
\*\*\*\*\* OXFORD ST. UNLEY \*\*\*\*\*

**FIRST  
THURSDAY**



\*\*\*\*\* ANNUAL SUBSCRIPTION IS \$5 ... NO PAY, NO NEWSLETTER !! \*\*\*\*\*

## committee

ROD STEVENSON (SECRETARY) A.H. 337-6682  
BUS. 51-5241  
DENNIS MORATH A.H. 271-7618  
GEOFF LANE (TREASURER) A.H. 79-3627  
RICHARD NEWCOMBE (EDITOR) A.H. 272-3081



## groups & information

PROJECTS & HARDWARE... ALLAN DENT A.H. 276-7233  
SYSTEM-80 USERS..... JACK WATTS A.H. 31-7013  
TRS-80 MODEL II ..... KEITH NEIGHBOUR BUS. 272-9855

## news & recent happenings

IAN VAGG HAS BEEN KIND ENOUGH TO SUPPLY US WITH THE NAME OF LOCAL SUBSCRIBERS TO "MICRO-80" SO THAT WE CAN TICKLE THEIR INTEREST IN THE CLUB. FOR THOSE THAT RECEIVE THIS NEWSLETTER AS A RESULT AND ARE INTERESTED, PLEASE CONTACT ROD STEVENSON AS NO MORE ISSUES WILL BE SENT. WE WELCOME ANY ENQUIRIES AND WOULD LIKE YOUR SUPPORT.

FROM THIS MONTH WE WILL BE OCCUPYING A NEW VENUE WHICH WE HAVE HAD OUR EYES ON FOR SOME TIME. THE RENOVATIONS ARE ALL BUT COMPLETE AND THE ONLY INCONVENIENCE THAT WE MAY HAVE TO SUFFER IS A LACK OF CARPET. IF THIS IS SO THE ROOM MAY BE A LITTLE NOISY BUT WE SHOULD NOT HAVE TO BEAR THIS FOR MORE THAN ONE MEETING.

THE BUILDING IS LOCATED BEHIND THE UNLEY COUNCIL CHAMBERS NEXT TO THE INTERVENING CAR PARK. IT IS AN OLD RENOVATED HOUSE OF GRAND PROPORTIONS THAT SHOULD BE RELATIVELY IDEAL AND ALSO OFFER SUPPER FACILITIES IF WE ORGANISE SUCH. THE HIRING CHARGE IS \$10 WHICH WE CAN FOR THE PRESENT COVER FROM OUR GENERAL FUNDS.

WITH A SENSE OF PERMANENCY ONCE AGAIN, WE SHOULD BE ABLE TO FOCUS MORE ON COORDINATING OUR ACTIVITIES ETC. TO FURTHER THIS AIM WE WILL HAVE A NUMBER OF NAME TAG MEETINGS TO HELP FAMILIARISE OURSELVES MORE WITH EACH OTHER, PARTICULARLY THE NEWER MEMBERS. THERE HAS BEEN A STEADY STREAM OF NEW FACES, INCLUDING THOSE ATTENDING AS A RESULT OF OUR RECENT POSTINGS TO "MICRO-80" SUBSCRIBERS.

AS A COMMITTEE WE ARE ALREADY AWARE OF THE BENEFITS OF HAVING A CLOSELY KNIT MEMBERSHIP FOR MEETING ORGANISATION AND TOPICS TOGETHER WITH SOME PROJECTS THAT ARE NOW CRYSTALLISING. IF YOU HAVE ANY SPECIFIC INTERESTS OR SKILLS WE ARE STILL LOOKING FOR CONTRIBUTIONS TO OUR MEETINGS. COME ONE AND ALL !!!!!!!

FROM ABOVE YOU MAY HAVE NOTICED THAT GEOFF LANE HAS KINDLY VOLUNTEERED TO BE TREASURER FOR WHICH WE TRULY THANK HIM (AND ALSO ANY OF YOU FUTURE BUDDING VOLUNTEERS; WHAT WAS IT THAT WAS SAID ABOUT THE "SILENT MAJORITY"??). SUBSCRIPTIONS SHOULD BY PREFERENCE BE DIRECTED TO HIM.

## next meeting

DENNIS MORATH WILL CONTINUE IN DISCUSSING DISK OPERATING SYSTEMS (WITH PARTICULAR REFERENCE TO "NEWDOS-80") AND MAY HAVE TIME TO ALSO COVER INNOVATIONS IN RELATION TO "BASIC" COMMANDS. ALLAN DENT WILL ALSO MAKE SOME COMMENTS ON WHAT HAS BEEN PROPOSED LATER IN THIS NEWSLETTER. AS USUAL THE NORMAL CHATTER WILL BE INDULGED.

*Micro User*

*34 Stuart St,  
Adelaide.*



## the market place

STEVE WINDSOR (A.H. 269-4855) WISHES TO SELL A MICROTEK EXPANSION UNIT MT32 (WITHOUT MEMORY) FOR \$100. FOR FURTHER DETAILS PLEASE RING HIM.

## random bits

### JOYSTICK AND PARALLEL I/O PORT PROJECT.

WE ARE BEGINNING TO MAKE SOME PROGRESS WITH THIS AND HAVE BEEN MUCH ENCOURAGED BY THE INTEREST. HERE IS YOUR CHANCE TO PUT YOUR MONEY WHERE YOUR MOUTH IS. I SUSPECT THAT SOME ARE MORE COMMITTED TO CROSS LOTTO !!! THE BASIC ELEMENT IS THE PRINTED CIRCUIT BOARD FROM WHICH POINT YOU CAN PROCEED AS WHIM PERMITS. THE CIRCUIT IS DESIGNED SO THAT IT CAN BE CONSTRUCTED TO SUIT THE NEEDS OF THE USER AND CAN HAVE,

- (A) 8 ANALOGUE INPUT PORTS TO THE A/D CONVERTER WHICH WILL ALLOW UP TO 4 JOYSTICKS OR 2 JOYSTICKS AND SEVERAL PUSH BUTTON INPUTS
- (B) 3 BIDIRECTIONAL 8 BIT PARALLEL I/O PORTS. THESE CAN BE PROGRAMMED AS 3 OUT PORTS, 3 INPUT PORTS OR ANY COMBINATION, EG 2 INPUT & 1 OUTPUT. ALL PORT CONNECTIONS ARE TTL COMPATABLE.
- (C) ANOTHER SET OF THREE PORTS AS IN (B). THE UNIT CAN BE BUILT WITH ANY COMBINATION OF (A) (B) & (C) AS THE USER REQUIRES AND ALL ARE PORT BASED FOR EASY ACCESS VIA THE "IN" AND "OUT" INSTRUCTIONS IN EITHER "BASIC" OR "ASSEMBLY".

AN ESTIMATE OF THE COST HAS BEEN MADE FOR THE VARIOUS COMBINATIONS. THE BASIC ESSENTIALS WILL INCLUDE P.C. BOARD, POWER SUPPLY, TRS-80 CONNECTOR AND LEAD, PORT ADDRESS DECODING LOGIC & MISCELLANEOUS COMPONENTS. THEN THE A/D CHIP AND I/O CHIPS ARE ADDED AS REQUIRED.

THE BASIC ESSENTIALS WILL COST APROX	\$40
THE A/D CHIP & 2 JOYSTICK POTS	\$20.
EACH GROUP OF 3 PARALLEL I/O PORTS	\$10.
TOTAL FOR 8 A/D INPUTS & 6 I/O PORTS	\$80

MECHANICAL BITS & CONNECTORS ARE NOT INCLUDED IN THE ESTIMATE (TRS-80 CONNECTOR EXCEPTED) AS USERS WILL WANT A CASE & CONNECTORS TO SUIT THEIR ASTHETIC VALUES AS WELL AS THEIR WALLET. SOME THRIFTY CONSTRUCTORS MAY EVEN WISH TO HARDWIRE THEIR JOYSTICKS TO THE P/C BOARD. THE IDEA BEHIND PRESENTING THIS INFORMATION IS TO FIND OUT HOW MANY MEMBERS WOULD BE INTERESTED IN CONSTRUCTING THIS UNIT. IF ENOUGH ARE INTERESTED WE MAY BE ABLE TO ORGANISE BULK PURCHASES AND PUT A KIT OF PARTS TOGETHER TO SAVE EVERYBODY GOING OUT AND CHASING PARTS SEPARATELY. IF THIS EVENTUATES, MONEY WILL HAVE TO BE PAID IN ADVANCE SO AS NOT TO OVER BURDEN THE PARTS PURCHASER.

A CORNER OF THE BOARD WILL BE RESERVED FOR SYSTEM-80 OWNERS TO GENERATE THE TANDY I/O SIGNALS "IN" & "OUT" WHICH ARE REQUIRED BY THE CIRCUIT. SYSTEM-80 OWNERS WILL ALSO HAVE TO SOLDER THEIR RIBBON CABLE TO THE P/C BOARD AS THE SIGNAL LINES ARE DIFFERENT TO THE TRS-80 FOR WHICH IT HAS BEEN DESIGNED.

THE USES TO WHICH THIS PERIPHERAL CAN BE PUT IS LIMITED ONLY BY THE OWNERS IMAGINATION. APART FROM THE GAMES OR SCREEN DRAWINGS UNDER JOYSTICK CONTROL, IMAGINE CONTROLLING A MULTITRACK MODEL TRAIN LAYOUT, SWITCHING POINTS, SENSING TRAIN POSITIONS & GENERATING TRAIN WHISTLES FROM YOUR KEYBOARD. SETTING UP YOUR COMPUTER AS A WEATHER MONITORING STATION TO CONTROL YOUR GREENHOUSE TEMPERATURE AND HUMIDITY. DRIVING AN EPROM PROGRAMMER WITH YOUR PORTS, OR DRIVING A MULTICHANNEL MUSIC SYNTHESISER.

THE MIND LITERALLY BOGGLES !!!! THE CLUB HAS SOME OTHER HARDWARE PROJECTS IN MIND TO ENABLE YOU TO GET THE MOST OUT OF YOUR INTERFACE. ONE CURRENTLY UNDER CONSIDERATION IS SOUND EFFECTS & MUSIC GENERATION USING THE PROGRAMMABLE SOUND GENERATOR CHIPS CURRENTLY AVAILABLE. AND THE OTHER IS SPEECH SYNTHESIS OF WHICH THERE IS A WHOLE NEW RANGE OF CHIPS AVAILABLE FROM SEVERAL DIFFERENT IC MANUFACTURERS. THIS TOPIC WAS INCIDENTLY COVERED VERY WELL IN THE FEBRUARY ISSUE OF "BYTE".

\*\*\*\*\* ANY QUESTIONS ON THE PROJECT SHOULD BE DIRECTED TO ALLAN DENT. \*\*\*\*\*

\*\* HAPPY HACKING!!!! \*\*



## collectors' corner

### GRAPHICS EMBEDDED IN STRINGS

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WE HAVE PREVIOUSLY COVERED "STRING PACKING" IN RELATION TO SHORT MACHINE LANGUAGE PROGRAMS. IN THIS EXAMPLE THE GRAPHIC CONTROL CODES ARE EMBEDDED IN 2 \$STRINGS IE, A\$ AND B\$. COMPLEX GRAPHICS CAN BE RAPIDLY DISPLAYED USING THIS METHOD. IN THE PROGRAM BELOW, THE TOP AND BOTTOM PARTS OF A SQUARE ARE CONTAINED IN THE \$STRINGS WHICH CAN BE PRINTED ANYWHERE ON THE SCREEN (B\$ IS LINED UP UNDER A\$ ADDING 64 TO VALUE X)

```
100 A$=CHR$(151)+CHR$(131)+CHR$(131)+CHR$(131)+CHR$(171)
110 B$=CHR$(181)+CHR$(176)+CHR$(176)+CHR$(176)+CHR$(186)
199 CLS:FORX=0 TO 895 STEP40: 'SCREEN VECTORS INCREMENTED BY 40 FOR EACH SQUARE
200 PRINT@X,A$;:PRINT@X+64,B$;
210 NEXT
220 GOTO220
```

THE \$STRINGS CAN ALSO BE CONSTRUCTED MORE EASILY BY USING DATA STATEMENTS IE  
1000 FOR X= 1 TO N: READ Y: A\$=A\$+ CHR\$(Y): NEXT

NOTICE THE SEMICOLON AFTER THE \$STRINGS AS THE CURSOR MAY OTHERWISE DELETE PART OF ANY CHARACTERS FOLLOWING ON THE SAME LINE.

### CHECKING INPUT.

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GENERALLY AN OTHERWISE BUG-FREE PROGRAM WILL CRASH WHERE INPUT IS OTHER THAN THAT EXPECTED, PARTICULARLY WHEN RUN NOT BY THE AUTHOR (WHO WOULD KNOW WHAT IS EXPECTED AS INPUT). THEREFORE WE SUGGEST CHECKING ALL INPUT BEFORE IT IS USED IN THE PROGRAM. THIS GIVES A CHANCE TO REJECT IT & ASK FOR MORE BEFORE IT DOES SOMETHING DISASTEROUS TO THE PROGRAM. AS A GENERAL RULE, WE INPUT EVERYTHING AS A \$STRING (YOU WILL REMEMBER OUR "LINE-INPUT" ROUTINE EARLIER), EVEN IF IT IS TO BE USED AS NUMERIC DATA.

A FEW EXAMPLES FOLLOW:-

A SIMPLE INPUT FOR NUMERIC DATA

```
100 IN$="":INPUT IN$ 'PREFERABLE TO USE THE LINE INPUT ROUTINE, AS IT WILL NOT REJECT A KEY HIT BY MISTAKE
200 IN=VAL(IN$)
300 IFIN<1 ORIN>7.8 THEN PRINT"INVALID INPUT":GOTO 100
PRINT"YOU INPUT"IN:GOTO 100
```

A ROUTINE TO CHECK A SINGLE INPUT AGAINST EXPECTED DATA

```
505 INPUT"ALL POSSIBLE ALLOWED INPUT":C$'BETTER TO USE LINE INPUT TO GET C$ IN
510 IN$="":INPUTIN$
520 FORI=1TOLEN(C$):IFIN$=MID$(C$,I,1)THENGOTO550
525 NEXTI
530 PRINT"INVALID INPUT":GOTO510
550 PRINT"YOU INPUT "IN$:GOTO510
```

A ROUTINE TO CHECKK MULTI-CHARACTER INPUT AGAINST ALLOWED EXPECTED INPUT

```
610 INPUT"ALLOWED SEQUENCES OF INPUT":C$
620 INPUT"NUMBER OF CHARACTERS EXPECTED":C
630 IN$="":PRINT"INPUT"C"CHARACTERS";:INPUTIN$
640 IFLEN(IN$)<>C THENGOTO680
650 FORI=1TOLEN(C$)STEP1
660 IFIN$=MID$(C$,I,C)THENGOTO690
670 NEXTI
680 PRINT"INVALID INPUT":GOTO630
690 PRINT"YOU INPUT "IN$:GOTO680
```



"I OPERATE A SIMPLE BUT EFFECTIVE INCENTIVE SCHEME...IF YOU DON'T WORK YOU'RE FIRED!"



# MICRO USER NEWS

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THE ABOVE ARE SIMPLE "OFF TOP OF HEAD" EXAMPLES OF THE PRINCIPLE OF CHECKING INPUT. WE HOPE THEY SPUR READERS ON TO GREATER THOUGHTS; WE ARE HORRIFIED AT THE LACK OF SOME INPUTS-CHECKING ON EVEN HUGE SYSTEMS. THE WELL-KNOWN ACCOUNT FOR \$0.00 WOULD NEVER BE SENT WERE THERE SOME INPUT-CHECKING INVOLVED. REMEMBER THAT INPUT NEED NOT COME FROM THE KEYBOARD ONLY - IT CAN BE DATA STATEMENTS, DATA FILES, &C. IF IT DOES COME FROM THE KEYBOARD HOWEVER, WE HOPE OUR EARLIER "LINE-INPUT" OR SOME SIMILAR ROUTINE WILL BE USED, BOTH FOR THE CHECK-DATA & THE INPUT-DATA. AGAIN, ANY DISCUSSION WILL BE WELCOMED AT MEETINGS - AT LEAST IT WILL SHOW SOMEONE READS OUR NEWSLETTER!

ARRAYS, ARRAYS..... AAAAGGGGGHH !!!!

WE HAVE OFTEN BEEN ASKED TO DISCUSS ARRAYS BUT LITTLE CAN BE SAID EXCEPT BY EXAMPLE. THEY LOOK HARDER THAN THEY REALLY ARE AND SO FOR A TIME WE MAY INCLUDE SOME DIFFERENT USES. THE EXAMPLE GENERATES 6 NUMBERS IN THE RANGE 1 TO 40, NEVER REPEATING ANY ONE NUMBER (A LA CROSS LOTTO).

```
10 DEFINTX,Y
80 RANDOM
90 FOR X2=0 TO 5: DO IT 6 TIMES
100 X3(X2)=RND(40): PICK A NUMBER
110 IFX2>0 THEN FORY=0 TO X2-1: IFX3(X2)=X3(Y) THEN Y=99: NEXTY: GOTO100 ELSE NEXTY
```

LINE 110 NEEDS SOME EXPLANATION BUT IS NOT EXECUTED UNTIL MORE THAN ONE NUMBER HAS BEEN PICKED. ITS BASIC FUNCTION IS TO SCAN ALL PREVIOUS NUMBERS AND IF THE LAST ONE SELECTED IS ALREADY PRESENT THEN THE PROGRAM IS SENT BACK TO LINE 100. THIS IS ACHIEVED BY USING ONE ARRAY "X3" BUT THE ESSENTIAL POINT IN THIS PROGRAM IS THAT VARIABLES "X2" AND "Y" CAN BE USED SIMULTANEOUSLY (IN THE BRACKETS) TO REFER TO DIFFERENT PARTS OF THE SAME ARRAY. THE VALUE "Y" IS TAKEN AS "X2-1", IE ONE LESS THAN THE LAST NUMBER PICKED (NO POINT IN COMPARING IT WITH ITSELF, MIGHT END UP IN LINE 100 AD INFINITUM PERCHANCE ???)

NOTE THAT IN JUMPING OUT OF THE "NEXT" LOOP THE POINTERS ARE CLEARED (AS DESCRIBED IN THE LAST NEWSLETTER) BEFORE RETURNING TO LINE 100.

