USE YOUR TRS-80 AS A TIMER OR ALARM CLOCK

You can program your computer to time an event lasting up to 24 hours or to sound an alarm at any desired time

A TRS-80 microcomputer can be used as a timer or stopwatch (with alarm) for timing anything from eggs to long-distance telephone calls. It can also be set to wake you up at some predetermined time. To accomplish this, all you need do is add a simple hardware attachment to the cassette port and feed into the computer a relatively simple program.

BY HOWARD BERENBON

TRS-80 CLOCK PROGRAM

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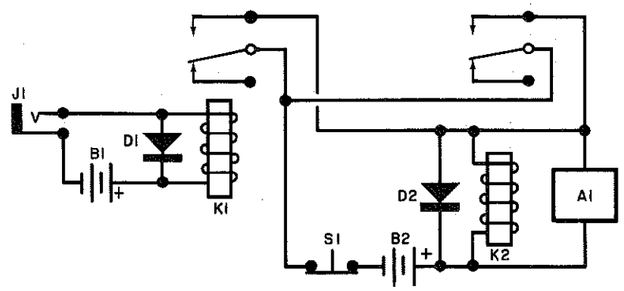
100 CLS
110 PRINT CHR$(23)
120 PRINT "12/24 HR DIGITAL ALARM CLOCK!"
130 PRINT "STOPWATCH-PHONE CALL TIMER"
140 PRINT "COPYRIGHT (C) 1979 BY HOWARD BERENBON"
150 PRINT
160 PRINT "SELECT PROGRAM 1 OR 2"
170 PRINT
180 PRINT "ENTER '1' FOR CLOCK,  '2' FOR STOPWATCH"
200 INPUT A
210 IF A=1 THEN 470
220 IF A=2 THEN 1000
230 GOTO 160
240 CLS
250 PRINT CHR$(23)
470 PRINT "12/24 HR CLOCK"
480 INPUT "ENTER '1' FOR 12,  '2' FOR 24";A
490 IF A=1 THEN 1300
495 IF A=2 THEN 1340
500 GOTO 470
510 PRINT
520 INPUT "SET ALARM?  '1'-YES,  '2'-NO";W
530 IF W=1 THEN 560
540 IF W=2 THEN 570
550 GOTO 490
560 INPUT "ENTER ALARM TIME-(HR,MN)";H,M
565 GOTO 580
570 H=0:M=0
580 INPUT "ENTER TIME TO START-(HR,MN,SC)";Z,Y,X
590 CLS
600 PRINT CHR$(23)
610 PRINT TAB(05);T;" HR ALARM CLOCK"
620 PRINT:PRINT TAB(10);"ALARM SET: ";H;" : ";M
630 PRINT:PRINT @ 448,"HRS ";Z;" : MIN ";Y;" : SEC ";X,
640 GOSUB 800
650 X=X+1
660 IF X=60 THEN 700
670 GOTO 630
700 X=0
710 Y=Y+1
720 IF Y=60 THEN 850
730 IF (Y=M) * (Z=H) * (W=1) THEN 915
740 GOTO 630
800 FOR A=1 TO 330
810 NEXT A
820 RETURN
850 Y=0
860 Z=Z+1
870 IF Z=T+1 THEN 900
880 IF Z=1000 THEN 1060
890 GOTO 630
900 Z=1
910 GOTO 630
915 X=0:GOSUB 1400
920 PRINT:PRINT "ALARM ACTIVATED"
925 X=4
930 PRINT #-1,A
940 GOTO 590
1000 CLS
1010 PRINT CHR$(23)
1020 PRINT "STOPWATCH-PHONE TIMER"
1030 INPUT "ENTER A '1' TO START";A
1040 CLS
1045 PRINT CHR$(23)
1050 PRINT:PRINT "PRESS 'BREAK' TO STOP TIMER"
1060 W=0:T=1000
1070 X=0:Y=0:Z=0
1080 GOTO 630
1300 T=12
1310 GOTO 510
1340 T=24
1350 GOTO 510
1400 PRINT @ 448,"HRS ";Z;" : MIN ";Y;" : SEC ";X,
1410 RETURN
```

The simple, two-relay circuit shown here can be wired through J1 to the computer's cassette interface. The alarm can be deactivated by pressing pushbutton switch S1.

PARTS LISTS

A1—6-volt alarm (Sonalert or similar)
B1—9-volt battery and holder
B2—6-volt lantern battery and holder
D1,D2—1N914 or similar silicon diode
J1—Subminiature phone jack
K1,K2—6-volt dc relay, 500-ohm coil (Radio Shack No. 275-004 or similar)
S1—Normally closed spst pushbutton switch
Misc.—Perforated board, suitable enclosure, interconnecting cable, machine hardware, hook-up wire, solder, etc.

Note: The program is available on cassette for $4.95 postpaid from Software Exchange, 2681 Peterboro, W. Bloomfield, MI 48033.

The 12/24-hour alarm-clock program written in Level II Basic is given in the table and the circuit in the diagram.

The Program. The program begins by asking whether you want the clock (1) or stopwatch (2). If you use the clock program, you can request either 12- or 24-hour operation. If desired, the alarm setting can be requested and you can enter hours and minutes. Finally, the program requests starting time in hours, minutes, and seconds. The program responds by displaying setting of the alarm and time.

When displayed time corresponds to alarm setting, the alarm circuit is activated. The alarm can be deactivated by pressing normally closed pushbutton switch *S1*. To use the timer mode, enter a 1 (and carriage return to start timing) when the program begins. When the event being timed is complete, press the BREAK key on the TRS-80 to stop the timer.

The Hardware. The simple two-relay circuit can be built on a perforated board and wired to the TRS-80's cassette interface. Alarm *A1* can be a buzzer or Sonalert. ◇

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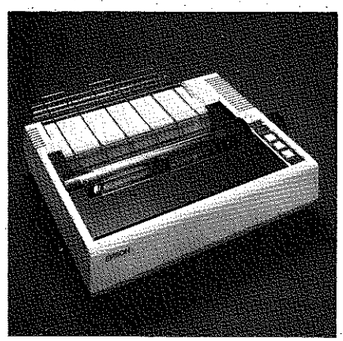

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