

Players of the game of Life on the Microtan can speed up their entry to the initial pattern with this subtle routine. Owners of other systems can pick up a tip or two too.

If you are one of the lucky owners of the Microtan-65 system you may have tried the "Life" program supplied in the manual. Although the main "Life" routine is excellent the method of getting the cells onto the screen is awkward — numerous "shifts" to move the cursor, and only the bottom half of the screen may be seeded. This program solves both these problems without any changes needed to the main "Life" routine and still running on the unexpanded system with Hex keyboard.

The cursor is moved around the screen by the Hex keypad using a "Joystick" layout (see Fig. 1). The cursor is a "+" giving the impression of a crosshair target, much more fun than a question-mark!

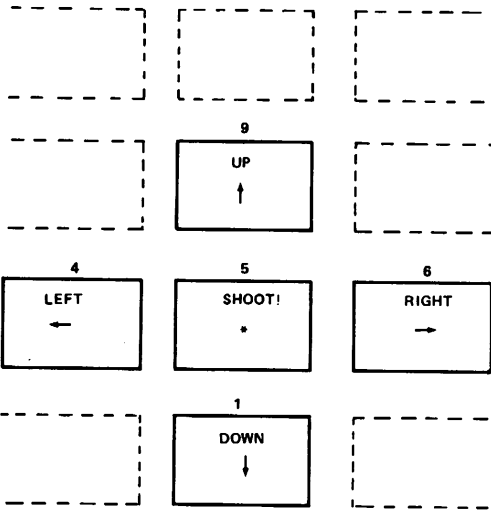


Fig. 1. Life Gun 'Joystick' Keyboard Layout

The Program

VDULO and VDUHI are used as a sixteen bit pointer to indicate which line on the screen the cursor is at and Index register Y is used to show the position on the line. The monitor routine OUTCR is used to clear the screen, this simply outputs sixteen carriage returns and thus scrolls the contents of the screen off the top of it. The various pointers are then initialised and a command is solicited from the keyboard. The cursor is then moved in the appropriate direction. If the command was LEFT or RIGHT the Y register is checked for being within 0 to 20 (Hex), thus keeping it on the same line. In the same way a check is kept on the vertical position by ensuring that VDULO and VDUHI are between 200 and 3F0, which are the addresses of the top and bottom lines respectively. If SHOOT or any invalid commands are received, an asterisk is stored at the present cursor position. The command "L" will bring the whole screen to "LIFE". This routine could easily be modified to run any type of "target" game replacing the main life routine with any other desired game program.

Running The Program

Enter the program into memory from the listing, followed by the main life routine from the manual (this is entered from 011E) or to test the program as a stand-alone routine remove the jump at 00CD by replacing it with NOPs. Begin execution from 00A3. The program should then run as described, note that to start "LIFE" just enter "L". A useful modification is to go through both programs and change every occurrence of '2A' to '4F', this will change the asterisks to Os, which look much more cell-like.

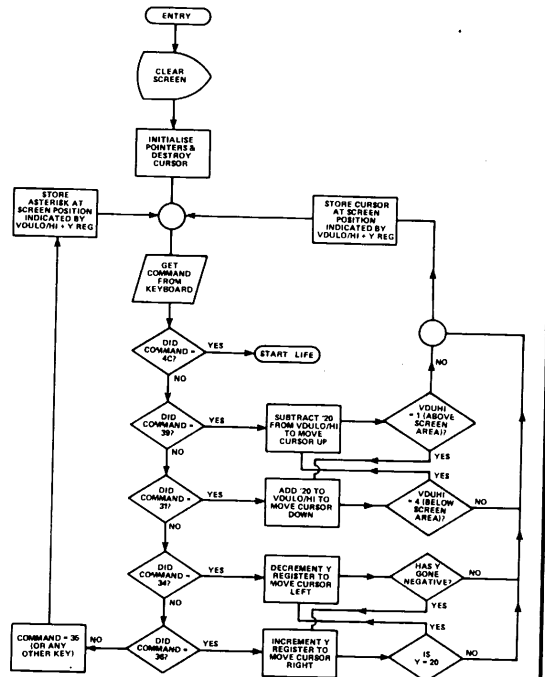


Fig. 2. Life Gun Flowchart

Program Listing

00A0 00	BYTE VDULO	Pointer to line that
00A1 00	BYTE VDUHI	contains the cursor
00A2 00	BYTE	
00A3 A0 OF	LDY #F	
00A5 20 73 FE	JSR OUTCR	Clear the screen using
00A8 88	DEY	monitor routine

LIFE GUN

00A9 10 FA	BPL ROUND		00E3 AA	TAX	
00AB A9 E0	LDA #E0		00E4 D0 D6	BNE COMMAND	
00AD 85 A0	STA VDULO	Initialise cursor pointer	00E6 A5 A0	LDA VDULO	
00AF A9 02	LDA #2		00E8 38	SEC	Move cursor up one line.
00B1 85 A1	STA VDUHI		00E9 E9 20	SBC #20	If cursor goes off screen,
00B3 A0 0F	LDY #0F	Delete cursor left from	00EB 85 A0	STA VDULO	go to DOWN to bring it
00B5 A9 20	LDA #20	monitor routine and set	00ED B0 02	BCS CONT	back
00B7 8D E0 03	STA 03E0	up "Y" with new cursor	00EF C6 A1	DEC VDUHI	
00BA D0 3B	BNE STORE	position Direct jump	00F1 A5 A1	LDA VDUHI	
00BC 8A	COMMAND TXA		00F3 C9 01	CMP #1	
00BD 48	PHA	Save environment	00F5 F0 09	BEQ DOWN	
00BE 98	TYA		00F7 B1 A0	LDA (VDULO), Y	
00BF 48	PHA		00F9 AA	TAX	Put cursor on screen at
00C0 20 FA FD	JSR POLLKB	Scan Keyboard	00FA A9 2B	LDA #2B	location specified by
00C3 68	PLA		00FC 91 A0	STA (VDULO), YVDULO + Y register	
00C4 A8	TAY	Restore environment	00FE D0 BC	BNE COMMAND	
00C5 68	PLA		0100 A5 A0	LDA VDULO	
00C6 AA	TAX		0102 18	CLC	
00C7 91 A0	STA(VDULO), Y	Put back original	0103 69 20	ADC #20	Move cursor down one
		contents of screen	0106 85 A0	STA VDULO	line
		position	0107 9D EE	BCC STORE	
00C9 A5 01	LDA ICHAR	Get keyboard character	0109 E6 A1	INC VDUHI	
00CB C9 4C	CMP #4C (L)		010B A5 A1	LDA VDUHI	
00CD F0 4F	BEQ LIFE		010D C9 04	CMP #4	
00CF C9 39	CMP #39		010F F0 D5	BEQ UP	
00D1 F0 13	BEQ UP		0111 D0 E4	BNE STORE	
00D3 C9 31	CMP #31	Check which command	0113 88	DEY	Move cursor left, make
00D5 F0 29	BEQ DOWN	and execute it.	0114 10 E1	BPL STORE	sure still on screen
00D7 C9 34	CMP #34		0116 C8	RIGHT	
00D9 F0 38	BEQ LEFT		0117 C0 20	CPY #20	Move cursor right. If too
00DB C9 36	CMP #36		0119 F0 F8	BEQ LEFT	far jump to LEFT
00DD F0 37	BEQ RIGHT		011B D0 DA	BNE STORE	
00DF A9 2A	LDA #2A	Put asterisk onto screen	011D EA	NOP	
00E1 91 A0	SHOOT STA(VDULO), Y	at cursor position	011E	START OF MAIN LIFE ROUTINE (AS IN MANUAL)	