

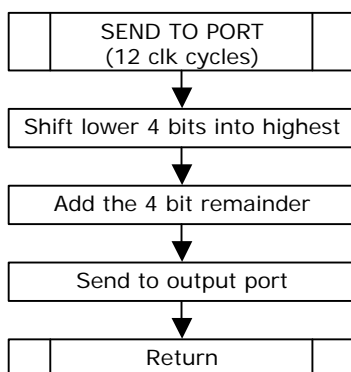
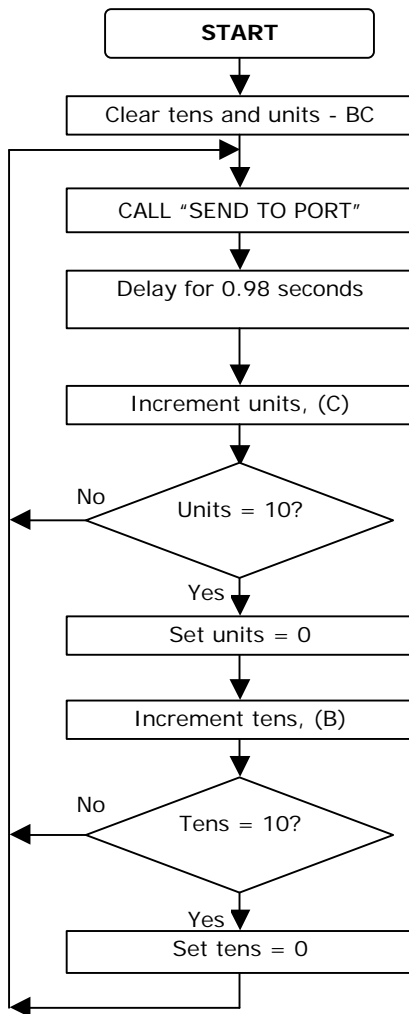
EZ-CPU CONTROL SYSTEM

DRIVING DISPLAYS – 5

PROGRAM: 99 SECOND TIMER	IP MODULE: -
DESCRIPTION: Counts from 00 to 99 seconds	OP MODULE: Q2DD
	CPU SPEED: 1KHz

The CONVERT routine used previously does not always take the same amount of time to convert a number to packed BCD. The bigger the number the more time it takes. A simpler method would be to represent each digit in BCD format. Then there is no need to convert a binary value into BCD format.

This program uses a timed delay loop. Each update of the time takes an average of 30cycles. So the remaining time is $1-0.03=0.97$ secs. Each loop in the delay takes 4ms so $243 \times 4\text{ms} = 972\text{ms}$. This will gain 2ms in every second giving an accuracy of 99.8%



ADDR	INSTRUCTION	CODE
00	LD BC,0	01 00 00
03	CALL SENDPORT	CD F4 00
06	LD D,243	16 F3
08	DEC D	15
09	JR NZ -3	20 FD
0B	INC C	0C
0C	LD A,C	79
0D	CP 10	FE 0A
0F	JR NZ -14	20 F2
11	LD C,0	0E 00
13	INC B	04
14	LD A,B	78
15	CP 10	FE 0A
17	JR NZ -22	20 EA
19	LD B,0	06 00
1B	JR -26	18 E6

F4	LD A,B	78
F5	RLCA	07
F6	RLCA	07
F7	RLCA	07
F8	RLCA	07
F9	AND 0xF0	E6 F0
FB	ADD A,B	81
FC	OUT (255),A	D3 FF
FE	RET	C9