EZ-CPU CONTROL SYSTEM

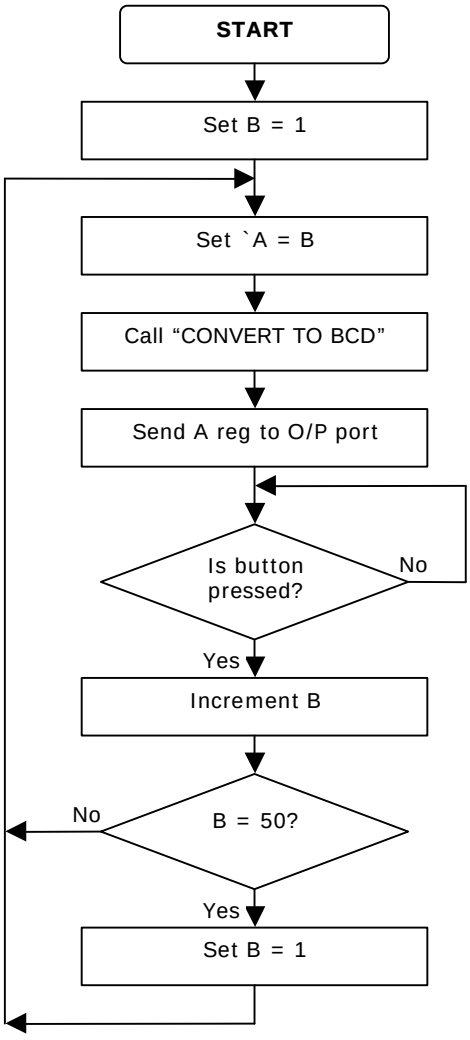
DRIVING DISPLAYS – 4a

PROGRAM:	LOTTEY NUMBER GENERATOR	IP MODULE:	-
DESCRIPTION:	Produces a number from 1 to 49	OP MODULE:	Q2DD
		CPU SPEED:	**100KHz**

Push RED button to generate a random number, let go to display it.

B register holds the random number being generated. It is a counter that increments rapidly while the button is pressed. If the count reaches 50 it is reset to 1.

The subroutine CONVERT TO BCD converts the value to a packed BCD byte.



ADDR	INSTRUCTION	CODE
00	LD B,1	06 01
02	LD A,B	78
03	CALL CONVERT	CD E0 00
06	OUT (255),A	D3 FF
08	IN A,(254)	DB FE
0A	AND 0x04	E6 04
0C	JR Z -6	28 FA
0E	INC B	04
0F	LD A,B	78
10	CP 50	FE 32
12	JR NZ -18	20 EE
14	LD B,1	06 01
16	JR -22	18 EA

EZCPU buttons:

Button	Bit	Mask
Back	bit 0	0x01
Next	bit 1	0x02
Mode	bit 2	0x04

EZ-CPU CONTROL SYSTEM

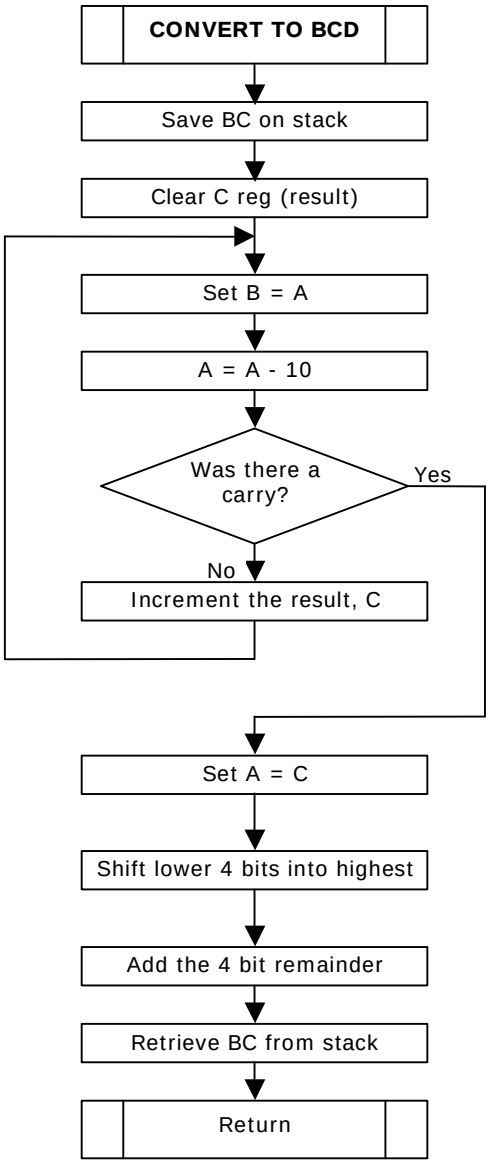
DRIVING DISPLAYS – 4b

PROGRAM:	CONVERT TO BCD Subroutine	IP MODULE:	-
DESCRIPTION:	Subroutine to convert an 8 bit binary value in A reg. to a packed BCD value.	OP MODULE:	-
		CPU SPEED:	**100KHz**

This routine will take a binary value in A and converts it to a packed BCD value in A.
Note: This routine will only work with numbers from 0 to 99. Any higher values will produce random results.

The routine will keep subtracting 10 from the A register until A is less than 0. Each subtraction increments the result. The higher 4 bits (D7-D4) hold the binary value of the tens, and the lower 4 bits (D3-D0) hold the units. This is known as packed BCD.

On entry to the routine, the contents of registers BC are PUSHED (saved) onto the STACK. On exit from the routine the contents of BC are POPPED (retrieved) from the STACK.



ADDR	INSTRUCTION	CODE
E0	PUSH BC	C5
E1	LD C,0	0E 00
E3	LD B,A	47
E4	SUB 10	D6 0A
E6	JR C +3	38 03
E8	INC C	0C
E9	JR -8	18 F8
EB	LD A,C	79
EC	RLCA	07
ED	RLCA	07
EE	RLCA	07
EF	RLCA	07
F0	AND 0xF0	E6 F0
F2	ADD A,B	80
F3	POP BC	C1
F4	RET	C9