

# KEYBOARD INTERFACE

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# KEYBOARD INTERFACE

## OBJECTIVE

To write an assembly language program to interface Key board with 8085 Microprocessor kit

## APPARATUS REQUIRED

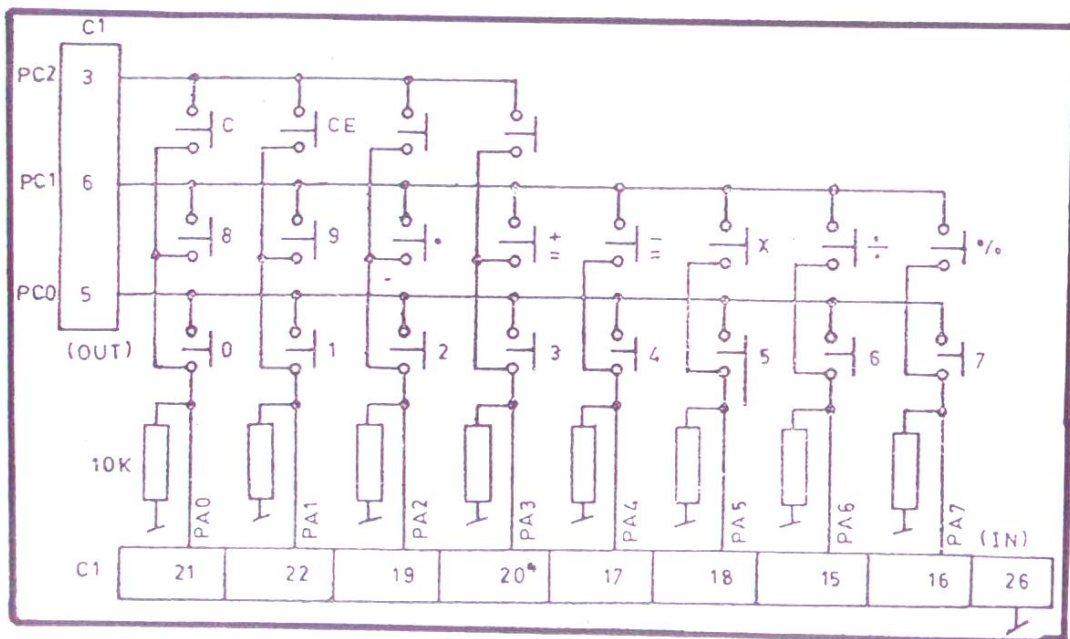
- 8085 Microprocessor kit.
- Power Supply.
- Keyboard Interfacing kit.

## ALGORITHM

1. Start the execution.
2. Set the ports of 8255 by writing the control word in CWR. Initialize total number of rows in temporary register.
3. First to check any key has been pressed in row1. If key has pressed in row1. If key was pressed then find the equivalent code and store in address of equivalent address in monitor routine.
4. If no key has been pressed in rows then increment the row and check whether key has been pressed. Then follow the previous step. Repeat the procedure until all the rows are checked.

## CIRCUIT DIAGRAM

## KEYBOARD INTERFACE



## PROGRAM CHART

ADDRESS	LABEL	MNEMONICS	OPCODE/OPERAND	COMMENT
C500		MVI A,90 <sub>H</sub>	3E 90	Initialize portA as I/P & other ports as O/P
C502		OUT CWR	D3 DB	
C504	L2	MVI C,03 <sub>H</sub>	0E 03	Get the number of rows
C506		MVI B,01 <sub>H</sub>	06 01	Get the 1 <sup>st</sup> row
C508	L1	MOV A,B	78	
C509		OUT PORTC	D3 DA	
C50B		IN PORTA	DB D8	Check if any key is pressed
C50D		CPI 00 <sub>H</sub>	FE 00	
C50F		JNZ L3	C2 1C C5	
C512		MOV A,B	78	
C513		RLC	07	Get the next row
C514		MOV B,A	47	
C515		DCR C	0D	Decrement the number of rows
C516		JNZ L1	C2 08 C5	
C519		JMP L2	C3 04 C5	
C51C	L3	MOV D,A	57	To know the data to be pressed
C51D		MOV A,C	79	
C51E		CPI 02 <sub>H</sub>	FE 02	
C520		JZ L4	CA 2B C5	
C523		JNC L5	D2 30 C5	
C526		MVI C,10 <sub>H</sub>	0E 10	3 <sup>rd</sup> row starting address
C528		JMP L6	C3 32 C5	
C52B	L4	MVI C,08 <sub>H</sub>	0E 08	2 <sup>nd</sup> row starting address
C52D		JMP L6	C3 32 C5	
C530	L5	MVI C,00 <sub>H</sub>	0E 00	1 <sup>st</sup> row starting address
C532	L6	MOV A,D	7A	Get the data that is pressed
C533	L7	RRC	0F	To get equivalent code
C534		JC L8	DA 3B C5	
C537		INR C	0C	
C538		JMP L7	C3 33 C5	
C53B	L8	MOV A,C	79	
C53C		STA FFFF9 <sub>H</sub>	32 F9 FF	Store the equivalent code
C53F		MVI B,01 <sub>H</sub>	06 01	For dot to be displayed
C541		CALL UPDDT	CD D3 06	
C544		JMP L2	C3 04 C5	

## EXECUTION

KEY PRESSED	DISPLAY
1	01
2	02
3	03
4	04
5	05
6	06
7	07
8	08
9	09
.	0A
+	0B
=	
-	0C
=	
*	0D
/	0E
%	0F
C	10
CE	11
BLANK( Right )	12
BLANK( Left )	13

## REFERENCE

1. Ramesh S.Gaonkar, Microprocessor Architecture, Programming, and Applications, Fourth Edition, Penram International Publishing (India), 2000.
2. S.Subathra, "Programming in 8085 Microprocessor and its applications – An Innovative Analysis", Technical Report, Adhiparashakthi Engineering College, Melmaruvathur, March 2003
3. Micro-85 EB, User Manual, Version – 3.0, CAT #M85 EB-002, VI Microsystems Pvt. Ltd., Chennai.