Embedded C Notes

Friday 8 November 2024 8:06 AM

Module 7 :

Keyboard

LCD interfacing

7 – segment

Keyboard :

Initially, all columns set to 1

all rows set to 0

Read columns, in case of 0 in any column.

go for finding

C_3	C_2	C_1	C_0
1	1	0	1

set rows as zero one by one and remaining as 1.

Which column is 0, that key will be selected.

delay of selecting the key is also taken into account.

LCD :

Pin 1 – V_{SS}

Pin 2 – V_{DD}

Pin 3 – V_{EE}

Pin 4 – RS

Register Select

R/W

Enable

0x01 –

0x80 – Force

0xC0 –

0x30 – 8-bit mode

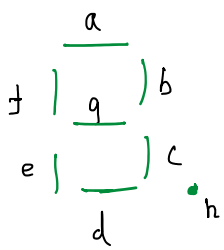
0x20 – 4-bit mode

Develop an intruder alarm system where buzzer and message is displayed in the LCD.

→ LCD Question (Example)

ADC, DAC, Temp. Sensor, 7-Segment display

	h	g	f	e	d	c	b	a	
0 –	0	0	1	1	1	1	1	1	– 3F
			3		F				
3 –	0	0	1	1	1	1	1	1	



Mazidi Pg 373.

ADC 0848 – Complete Schematic & Program

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↳ 8 Marks or 10 Marks

Interrupt : ADC to 8051

1) CS activated

(start CMV) WR "

RD "

(EOC) INTR given to ADC

V_{ref} – Step Size Controlled

V_{ref} ↑ Step Size ↓

12 –bit ADC – 2^{12}

8 –bit ADC – 2^8

Step size = $5/2^8$

Formula ☆:

$$\frac{V_{in}}{\text{Step Size}}$$

Ex 13.1 Mazidi

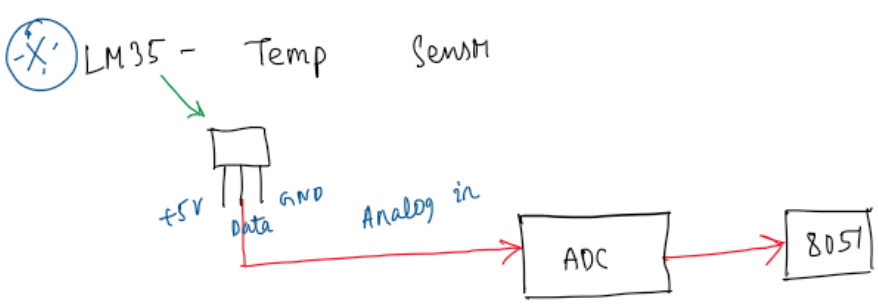
Quiz Important ☆

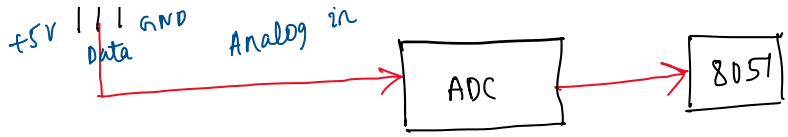
Figure 13.11 Mazidi

Digital GND – Ground for 8051 and ADC

Analog GND – Ground for Analog Signal

Multiplexing not Important





DAC: R2R, Binary weighted — Conversion Types