Expt . No. 1: LED Interfacing to 8051

TITLE

Parallel port interacting of LEDS—Different programs (flashing, Counter)

AIM:

Write Embedded C program for LED flashing. [ON/OFF (Flashing), counter, Ring counter, alternate flashing etc.]

OBJECTIVE:

1. To understand the concept of interfacing of LEDs with port of 8051 microcontrollers.
2. Write programs using simple and interrupt routine for flashing of LEDs

THEORY:

First we will connect LEDs to a port. To glow LEDs in particular format we have to transfer data to the Accumulator from Accumulator to the port where LEDs are connected.
We can glow LEDs in different formats.
Consider current requirement and add pull-ups.
The general View of LED is shown in fig (1)

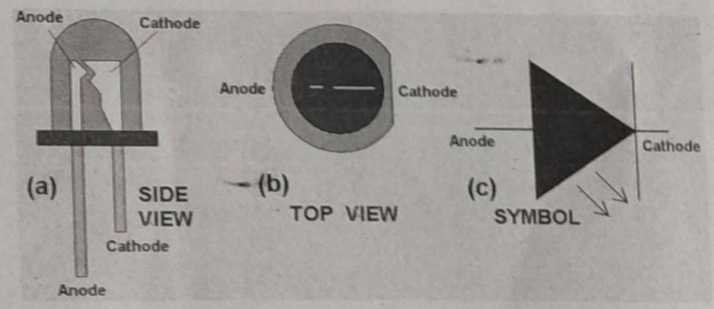


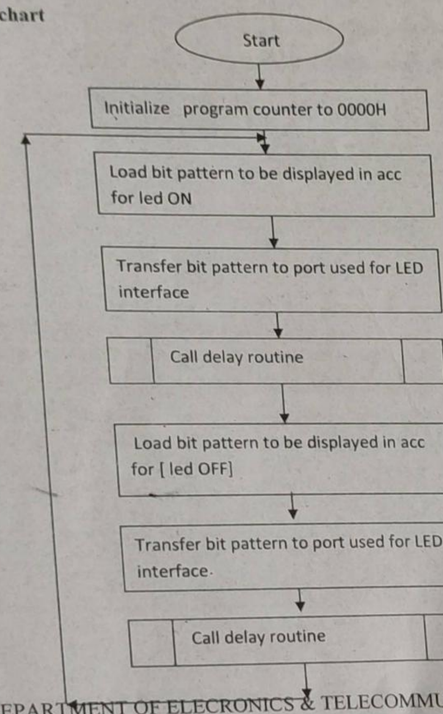
Fig (1): view of LED

Current flows from anode to cathode. A 330Ω register is connected between port lines and LED Resistance of an LED is almost zero. Hence current flowing through LED is I=V/R which is approximately in mA.

ALGORITHM

Step 1 : Initialize program counter to 0000h
Step 2 : Load bit pattern to glow LED into the accumulator
Step 3 : Move contents of accumulator to Port register
Step 4 : Wait for some time i.e. delay [may be generated using timers or register]
Step 5 : Load Same or different Data sequence of LED glowing into the accumulator
Step 6 : Move contents of accumulator to port register
Step 7 : Wait for some time i.e. Delay
Step 8 : Continue Go to step 1

➢ **Flow chart**



Circuit Diagram: Fig (2) shows the interfacing diagram of single LED. There are different ways of connections [common anode or common cathode]. Fig (3) is the general view of 8051 based development board.

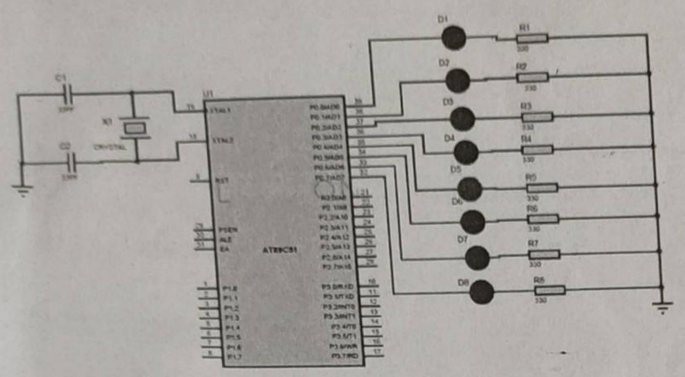


Fig (2): LED Interfacing

CONCLUSION: Write according to result

In this Practical we have studied about Parallel port interfacing of LED's with different Program flashing and counters.