LED Sequence

Learning OBJeCTIVES

• LED Blinking using 8051 Microcontroller and Keil C – AT89C518051 Microcontroller is a programmable device which is used for controlling purpose.

• Basically 8051 controller is Mask programmable means it will programmed at the time of manufacturing and will not programmed again, there is a derivative of 8051 microcontroller, 89c51 micro controller which is re-programmable.

Inputs

* The input in this code is not explicitly defined within the snippet. However, we can infer that the input is related to the delay function. The delay(unsigned int t) function takes an unsigned integer t as an argument, which likely represents the delay time.

OUTPUTs

* The output port is represented by the P1 register. In the code, you set different values to P1 (e.g., P1=0x01, P1=0x02, etc.). These values correspond to different binary patterns on the individual bits of P1.
* Each bit of P1 controls a specific output pin. For example:
  + Bit 0 (LSB) controls the first output pin.
  + Bit 1 controls the second output pin.
  + Bit 7 (MSB) controls the eighth output pin.

LOGIC

#include <reg51.h>

void delay(unsigned int);

void main(void)

{

while(1)

{

P1=0x01;

delay(50);

P1=0x02;

delay(50);

P1=0x04;

delay(50);

P1=0x08;

delay(50);

P1=0x10;

delay(50);

P1=0x20;

delay(50);

P1=0x40;

delay(50);

P1=0x80;

delay(50);

}

}

void delay(unsigned int t)

{

unsigned int i,j;

for(i=0;i<t;i++)

for(j=0;j<1275;j++);

}

RESULT

1. **LED Sequence**:
   * The code controls a sequence of LEDs connected to Port 1 (P1) of an 8051 microcontroller.
   * It sequentially turns on individual LEDs one at a time, cycling through the following values: 0x01, 0x02, 0x04, 0x08, 0x10, 0x20, 0x40, and 0x80.
   * Each value corresponds to a different LED being illuminated.
2. **Delay Function**:
   * The delay(unsigned int t) function introduces a delay between LED transitions.
   * It waits for a total of t iterations, where each iteration consists of an inner loop running 1275 times.
   * The purpose of this delay is to control the timing between LED changes.