

 Marwadi University Marwadi Chandarana Group	NAAC A+	Marwadi University Faculty of Technology Department of Information and Communication Technology	
Subject: Microcontroller and Interfacing (01CT0403)		Aim: AVR Microcontroller I/O Programming In C.	
Session Assignment :- 01	Date:- 05-02-2024	Enrollment No:- 92200133030	

Objective: AVR Microcontroller I/O Programming In C.

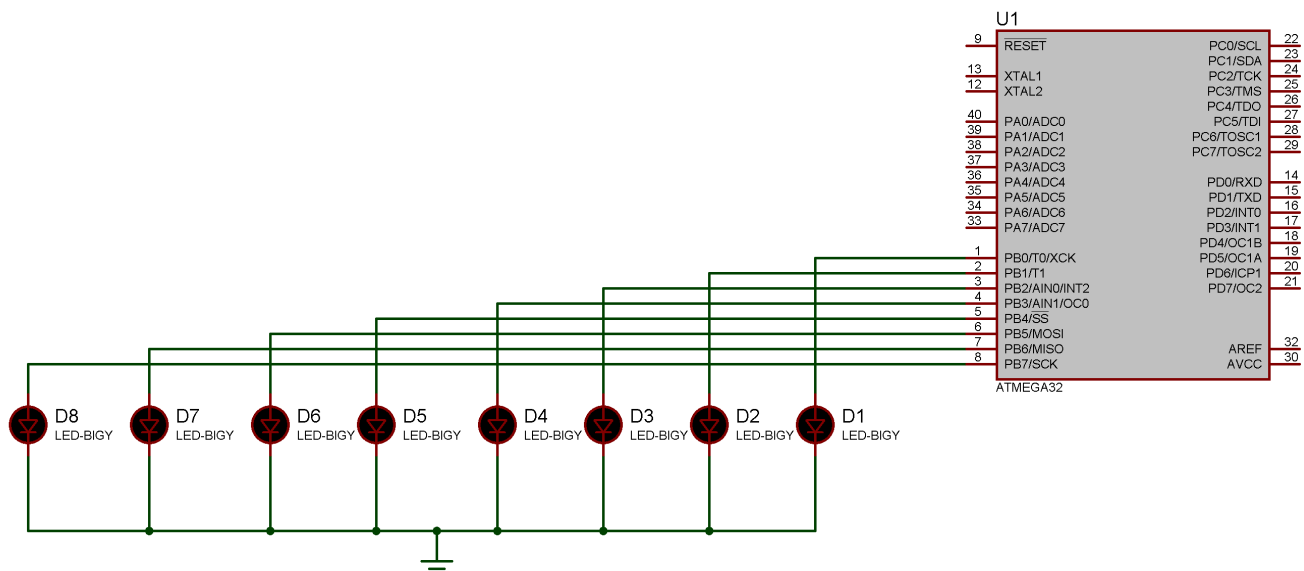
Task-1 :- Let us assume that 8 LEDs are connected to pins of PORTB. Write an AVR C program that shows count from 0 to FFH on the LEDs.

Code :-

```
#define F_CPU 16000000UL
#include <avr/io.h>
#include <util/delay.h>
int main(void) {
    DDRB = 0xFF;
    while (1)
    {
        for (int i = 0; i <= 255; i++)
        {
            PORTB = i;
            _delay_ms(50);
        }
    }

    return 0;
}
```

Circuit :-



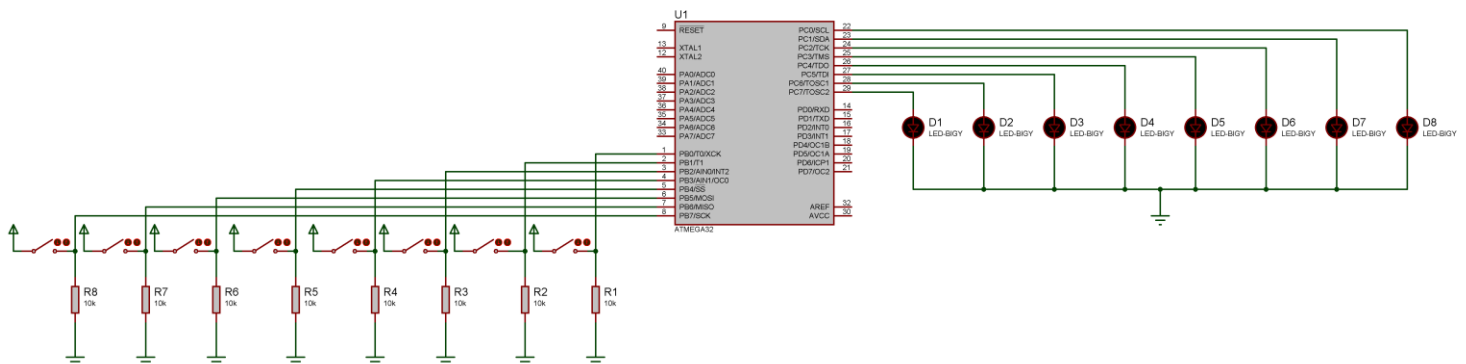
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Task-2 :- Configure portB as input port, configure portC as output port. Write an AVR C program to get a byte from PortB and then send it to PortC.

Code :-

```
#define F_CPU 16000000UL
#include <avr/io.h>
#include <util/delay.h>
int main(void) {
    DDRB = 0x00;
    DDRC = 0xFF;
    while (1) {
        PORTC = PINB ;
    }
    return 0;
}
```

Circuit :-



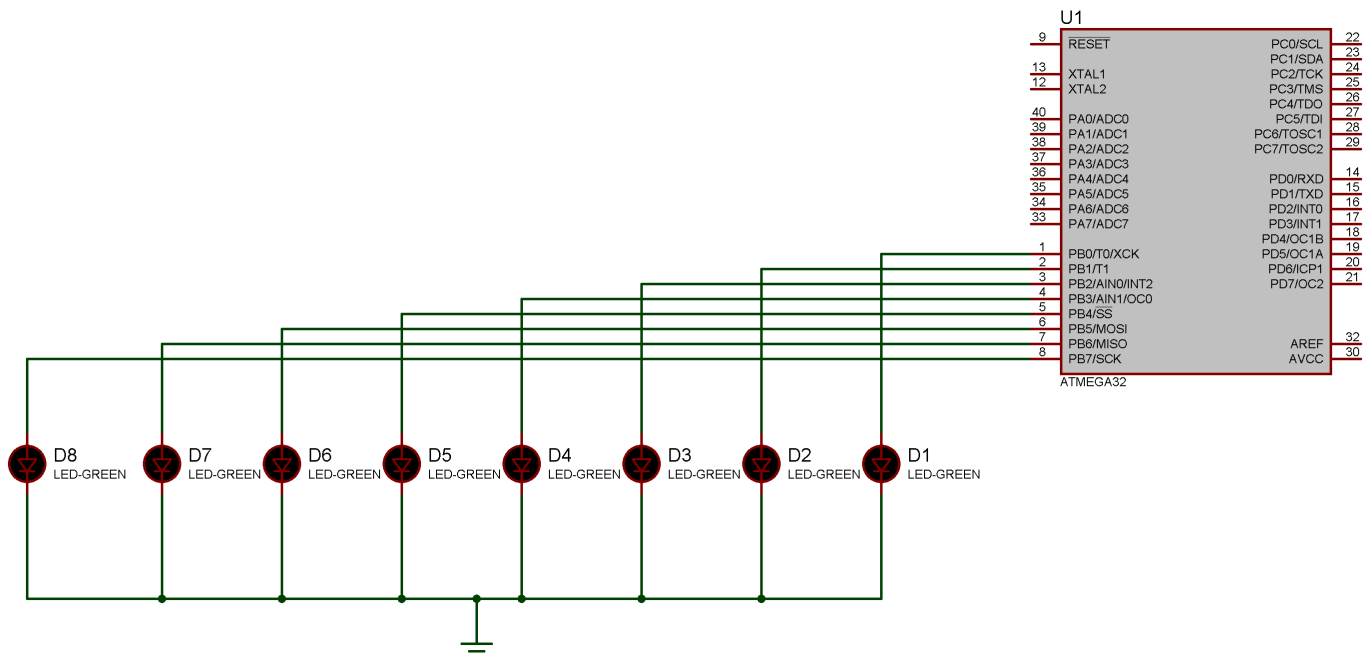
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Task-4 :- Write an AVR C program to toggle only bit 7 of PortB continuously without disturbing the rest of the pins of PortB.

Code :-

```
#define F_CPU 16000000UL
#include <avr/io.h>
#include <util/delay.h>
int main(void) {
    DDRB = 0xFF;
    PORTB = 0xFF;
    while (1) {
        PORTB = PORTB ^ 0x80 ;
        _delay_ms(10);
    }
    return 0;
}
```

Circuit :-



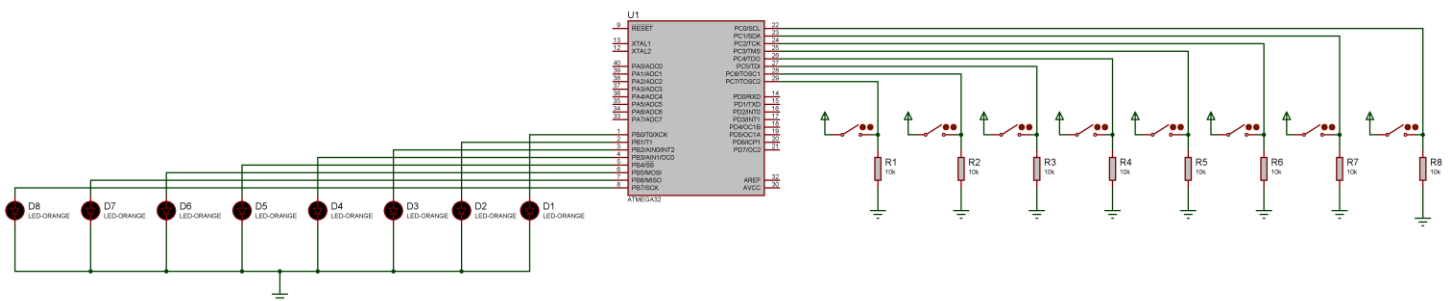
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Task-5 :- Write an AVR C program to monitor bit 5 of port C. If it is high, send FFH to PortB , otherwise send 00H to PortB.

Code :-

```
#define F_CPU 16000000UL
#include <avr/io.h>
#include <util/delay.h>
int main(void) {
    DDRC = 0x00;
    DDRB = 0xFF;
    while (1) {
        if(PINC == 0x20) {
            PORTB = 0xFF ;
        } else {
            PORTB = 0x00 ;
        }
    }
    return 0;
}
```

Circuit :-



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