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//                                     Knight Rider Style
/* Name: Nadir Osman Al-Wattar*/

/*****
 *
 * Alternately toggle two LEDs when a push button is pressed.
 * ATmega328P (Arduino Uno), 16 MHz, AVR 8-bit Toolchain 3.6.2
 *
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 *
 *****/

/* Defines -----*/

#define LED_RED      PC0
#define LED_GREEN    PB5
#define LED_YELLOW   PB4
#define LED_ORANGE   PB3
#define LED_BLUE     PB2
#define BTN          PD0

#define BLINK_DELAY 500
#ifndef F_CPU
#define F_CPU 16000000 // CPU frequency in Hz required for delay
#endif

/* Includes -----*/
#include <util/delay.h> // Functions for busy-wait delay loops
#include <avr/io.h>     // AVR device-specific IO definitions

/* Functions -----*/
/**
 * Main function where the program execution begins. Toggle two LEDs
 * when a push button is pressed.
 */
int main(void)
{
    DDRB = DDRB | (1<<LED_GREEN);
    DDRB = DDRB | (1<<LED_ORANGE);
    DDRB = DDRB | (1<<LED_BLUE);
    DDRB = DDRB | (1<<LED_YELLOW);
    DDRC = DDRC | (1 << LED_RED );

    PORTB = PORTB & ~(1<<LED_GREEN);
    PORTB = PORTB & ~(1<<LED_ORANGE);
    PORTB = PORTB & ~(1<<LED_BLUE);
    PORTB = PORTB & ~(1<<LED_YELLOW);
    PORTC = PORTC & ~(1<<LED_RED);

    DDRD = DDRD & ~(1<<BTN); //Turn OFF
    PORTD = PORTD | (1<<BTN);

    // Infinite loop

    while (1)
    {

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        // Pause several milliseconds

//1
if (bit_is_clear(PIND, BTN))
{
    PORTC=PORTC ^ (1<<LED_RED);
    _delay_ms(BLINK_DELAY);
    PORTC = PORTC & ~(1<<LED_RED);
}

//2
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<<LED_GREEN);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_GREEN);
}

//3
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<< LED_YELLOW);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_YELLOW);
}

//4
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<< LED_ORANGE);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_ORANGE);
}

//5
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<< LED_BLUE);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_BLUE);
}

//4
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<< LED_ORANGE);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_ORANGE);
}

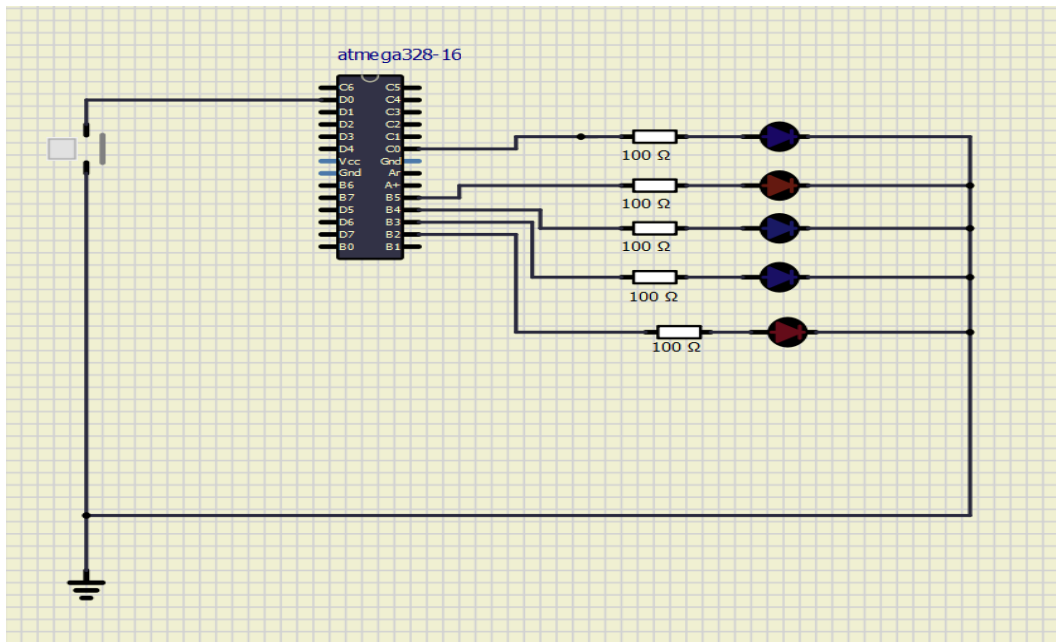
//3
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<< LED_YELLOW);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_YELLOW);
}

//2
if (bit_is_clear(PIND, BTN))
{
    PORTB=PORTB ^ (1<<LED_GREEN);
    _delay_ms(BLINK_DELAY);
    PORTB = PORTB & ~(1<<LED_GREEN);
}

_delay_ms(50);

    }
    // Will never reach this
    return 0;
}

```



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// Two LEDs and Push button

/* Defines -----*/
#define LED_GREEN PB5 // AVR pin where green LED is connected
#define LED_RED PC0
#define BTN PD0
#define BLINK_DELAY 250
#ifndef F_CPU
#define F_CPU 16000000 // CPU frequency in Hz required for delay
#endif

/* Includes -----*/
#include <util/delay.h> // Functions for busy-wait delay loops
#include <avr/io.h> // AVR device-specific IO definitions

/* Functions -----*/
/**
 * Main function where the program execution begins. Toggle two LEDs
 * when a push button is pressed.
 */
int main(void)
{
    /* GREEN LED */
    // Set pin as output in Data Direction Register...
    DDRB = DDRB | (1<<LED_GREEN);
    // ...and turn LED off in Data Register
    PORTB = PORTB & ~(1<<LED_GREEN);

    /*RED LED*/
    DDRC = DDRC | (1<<LED_RED);
    PORTC = PORTC & ~(1<<LED_RED);

    DDRD = DDRD & ~(1<<BTN); //Turn OFF
    PORTD = PORTD | (1<<BTN);

    // Infinite loop
    while (1)
    {
        // Pause several milliseconds
    }
}
```

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_delay_ms(BLINK_DELAY);

// WRITE YOUR CODE HERE
if (bit_is_clear(PIND, BTN))
{

// WRITE YOU CODE HERE
PORTB = PORTB ^ (1<<LED_GREEN);
PORTC = PORTC ^ (1<<LED_RED);
}

}

// Will never reach this
return 0;
}

```

