

Projeto Intermediário - 2 - Controle de Leds por Contagem e Botões

Tutorial:

Componentes

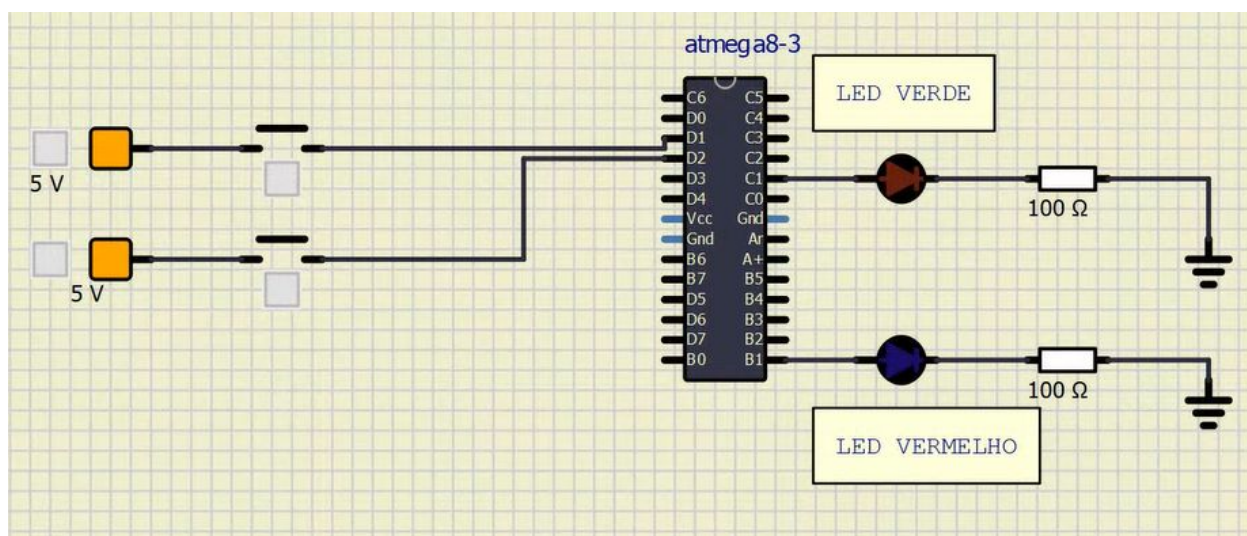
2 Tensão Fixa 5v

2 Botão

2 Led

1 Microcontrolador Atmega8-18

Simulação Software SimulIDE



Montagem do Projeto no SimulIDE

Conexões dos componentes:

Botão 1	Porta D1
Botão 2	Porta D2
Led 1 (Verde)	Porta C1
Led 2 (Vermelho)	Porta B1

Programação em C Software CODEVision

Bibliotecas utilizadas:

```
<stdio.h>
<delay.h>
<mega8.h>

#include

// Standard Input/Output functions
#include <stdio.h>

#include <delay.h> // Inclui a biblioteca de funções de temporização

// Declare your global variables here

int cont;

void main(void)
{
// Declare your local variables here
cont = 0;

// Input/Output Ports initialization
// Port B initialization
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
PORTB=0x00;
DDRB=0x02;

// Port C initialization
// Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
// State6=T State5=T State4=T State3=T State2=T State1=T State0=T
PORTC=0x00;
DDRC=0x02;

// Port D initialization
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T
PORTD=0x00;
DDRD=0x00;
```

```
// Timer/Counter 0 initialization
// Clock source: System Clock
// Clock value: Timer 0 Stopped
TCCR0=0x00;
TCNT0=0x00;
```

```
// Timer/Counter 1 initialization
// Clock source: System Clock
// Clock value: Timer1 Stopped
// Mode: Normal top=0xFFFF
// OC1A output: Discon.
// OC1B output: Discon.
// Noise Canceler: Off
// Input Capture on Falling Edge
// Timer1 Overflow Interrupt: Off
// Input Capture Interrupt: Off
// Compare A Match Interrupt: Off
// Compare B Match Interrupt: Off
TCCR1A=0x00;
TCCR1B=0x00;
TCNT1H=0x00;
TCNT1L=0x00;
ICR1H=0x00;
ICR1L=0x00;
OCR1AH=0x00;
OCR1AL=0x00;
OCR1BH=0x00;
OCR1BL=0x00;
```

```
// Timer/Counter 2 initialization
// Clock source: System Clock
// Clock value: Timer2 Stopped
// Mode: Normal top=0xFF
// OC2 output: Disconnected
ASSR=0x00;
TCCR2=0x00;
TCNT2=0x00;
OCR2=0x00;
```

```
// External Interrupt(s) initialization
// INT0: Off
// INT1: Off
MCUCR=0x00;
```

```
// Timer(s)/Counter(s) Interrupt(s) initialization
TIMSK=0x00;

// USART initialization
// Communication Parameters: 8 Data, 1 Stop, No Parity
// USART Receiver: Off
// USART Transmitter: On
// USART Mode: Asynchronous
// USART Baud Rate: 19200
UCSRA=0x00;
UCSRB=0x08;
UCSRC=0x86;
UBRRH=0x00;
UBRRL=0x2F;

// Analog Comparator initialization
// Analog Comparator: Off
// Analog Comparator Input Capture by Timer/Counter 1: Off
ACSR=0x80;
SFIOR=0x00;

// ADC initialization
// ADC disabled
ADCSRA=0x00;

// SPI initialization
// SPI disabled
SPCR=0x00;

// TWI initialization
// TWI disabled
TWCR=0x00;

while (1)
{
    // Place your code here
    if (PIND.1)
    {
        cont = cont + 1;
        printf("Numero de pessoas no interior: = %d.\r\n",cont);
    }
};
```

```
delay_ms(500); // Aguarda 500 milisegundos

if (PIND.2)
{
    if(cont == 0)
    {
        printf("Ambiente vazio \r\n");
    }

    else
    {
        cont = cont - 1;
        printf("Numero de pessoas no interior: = %d.\r\n",cont);
    }

};

if(cont <= 2)
{
    PORTB.1=0;
    PORTC.1=1;

}
else
{
    PORTB.1=~PORTB.1;
    PORTC.1=0;

};

delay_ms(500); // Aguarda 500 milisegundos

} //while
}
```