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1  /*****
2  This program was created by the
3  CodeWizardAVR V3.12 Advanced
4  Automatic Program Generator
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7
8  Project : Lamu Lalu Lintas
9  Version : 1.2
10 Date : 6/24/2019
11 Author : Rizky Arsyansyah Rinjani & Ilham Alif Ramadhan
12 Company : STMIK AMIKOM PURWOKERTO
13 Comments: TI 18 S (18.11.0153 & 18.11.0000)
14
15
16 Chip type : ATmega16
17 Program type : Application
18 AVR Core Clock frequency: 12.000000 MHz
19 Memory model : Small
20 External RAM size : 0
21 Data Stack size : 256
22 *****/
23
24 #include <mega16.h>
25 #include <delay.h>
26
27 // Declare your global variables here
28
29 int merah = 4;
30 int kuning = 2;
31 int hijau = 1;
32
33 void main(void)
34 {
35 // Declare your local variables here
36
37 // Input/Output Ports initialization
38 // Port A initialization
39 // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=Out Bit1=Out Bit0=Out
40 DDRA=(0<<DDA7) | (0<<DDA6) | (0<<DDA5) | (0<<DDA4) | (0<<DDA3) | (1<<DDA2) | (1<<DDA1) | (1<<DDA0);
41 // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=0 Bit1=0 Bit0=0
42 PORTA=(0<<PORTA7) | (0<<PORTA6) | (0<<PORTA5) | (0<<PORTA4) | (0<<PORTA3) | (0<<PORTA2) | (0<<PORTA1) | (0<<PORTA0);
43
44 // Port B initialization
45 // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=Out Bit1=Out Bit0=Out
46 DDRB=(0<<ddb7) | (0<<ddb6) | (0<<ddb5) | (0<<ddb4) | (0<<ddb3) | (1<<ddb2) | (1<<ddb1) | (1<<ddb0);
47 // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=0 Bit1=0 Bit0=0
48 PORTB=(0<<PORTB7) | (0<<PORTB6) | (0<<PORTB5) | (0<<PORTB4) | (0<<PORTB3) | (0<<PORTB2) | (0<<PORTB1) | (0<<PORTB0);
49
50 // Port C initialization
51 // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=Out Bit1=Out Bit0=Out
52 DDRC=(0<<DDC7) | (0<<DDC6) | (0<<DDC5) | (0<<DDC4) | (0<<DDC3) | (1<<DDC2) | (1<<DDC1) | (1<<DDC0);
53 // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=0 Bit1=0 Bit0=0
54 PORTC=(0<<PORTC7) | (0<<PORTC6) | (0<<PORTC5) | (0<<PORTC4) | (0<<PORTC3) | (0<<PORTC2) | (0<<PORTC1) | (0<<PORTC0);
55
56 // Port D initialization
57 // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=Out Bit1=Out Bit0=Out
58 DDRD=(0<<DDD7) | (0<<DDD6) | (0<<DDD5) | (0<<DDD4) | (0<<DDD3) | (1<<DDD2) | (1<<DDD1) | (1<<DDD0);
59 // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=0 Bit1=0 Bit0=0
60 PORTD=(0<<PORTD7) | (0<<PORTD6) | (0<<PORTD5) | (0<<PORTD4) | (0<<PORTD3) | (0<<PORTD2) | (0<<PORTD1) | (0<<PORTD0);
61
62 // Timer/Counter 0 initialization
63 // Clock source: System Clock
64 // Clock value: Timer 0 Stopped
65 // Mode: Normal top=0xFF
66 // OC0 output: Disconnected
67 TCCR0=(0<<WGM00) | (0<<COM01) | (0<<COM00) | (0<<WGM01) | (0<<CS02) | (0<<CS01) | (0<<CS00);
68 TCNT0=0x00;
69 OCR0=0x00;
70
71 // Timer/Counter 1 initialization
72 // Clock source: System Clock
73 // Clock value: Timer1 Stopped
74 // Mode: Normal top=0xFFFF
75 // OC1A output: Disconnected
76 // OC1B output: Disconnected
77 // Noise Canceler: Off
78 // Input Capture on Falling Edge
79 // Timer1 Overflow Interrupt: Off
80 // Input Capture Interrupt: Off
81 // Compare A Match Interrupt: Off
82 // Compare B Match Interrupt: Off

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83 TCCR1A=(0<<COM1A1) | (0<<COM1A0) | (0<<COM1B1) | (0<<COM1B0) | (0<<WGM11) | (0<<WGM10);
84 TCCR1B=(0<<ICNC1) | (0<<ICES1) | (0<<WGM13) | (0<<WGM12) | (0<<CS12) | (0<<CS11) | (0<<CS10);
85 TCNT1H=0x00;
86 TCNT1L=0x00;
87 ICR1H=0x00;
88 ICR1L=0x00;
89 OCR1AH=0x00;
90 OCR1AL=0x00;
91 OCR1BH=0x00;
92 OCR1BL=0x00;
93
94 // Timer/Counter 2 initialization
95 // Clock source: System Clock
96 // Clock value: Timer2 Stopped
97 // Mode: Normal top=0xFF
98 // OC2 output: Disconnected
99 ASSR=0<<AS2;
100 TCCR2=(0<<PWM2) | (0<<COM21) | (0<<COM20) | (0<<CTC2) | (0<<CS22) | (0<<CS21) | (0<<CS20);
101 TCNT2=0x00;
102 OCR2=0x00;
103
104 // Timer(s)/Counter(s) Interrupt(s) initialization
105 TIMSK=(0<<OCIE2) | (0<<TOIE2) | (0<<TICIE1) | (0<<OCIE1A) | (0<<OCIE1B) | (0<<TOIE1) | (0<<OCIE0) | (0<<
TOIE0);
106
107 // External Interrupt(s) initialization
108 // INT0: Off
109 // INT1: Off
110 // INT2: Off
111 MCUCR=(0<<ISC11) | (0<<ISC10) | (0<<ISC01) | (0<<ISC00);
112 MCUCSR=(0<<ISC2);
113
114 // USART initialization
115 // USART disabled
116 UCSRB=(0<<RXCIE) | (0<<TXCIE) | (0<<UDRIE) | (0<<RXEN) | (0<<TXEN) | (0<<UCSZ2) | (0<<RXB8) | (0<<TXB8);
117
118 // Analog Comparator initialization
119 // Analog Comparator: Off
120 // The Analog Comparator's positive input is
121 // connected to the AIN0 pin
122 // The Analog Comparator's negative input is
123 // connected to the AIN1 pin
124 ACSR=(1<<ACD) | (0<<ACBG) | (0<<ACO) | (0<<ACI) | (0<<ACIE) | (0<<ACIC) | (0<<ACIS1) | (0<<ACIS0);
125 SFIOR=(0<<ACME);
126
127 // ADC initialization
128 // ADC disabled
129 ADCSRA=(0<<ADEN) | (0<<ADSC) | (0<<ADATE) | (0<<ADIF) | (0<<ADIE) | (0<<ADPS2) | (0<<ADPS1) | (0<<ADPS0);
130
131 // SPI initialization
132 // SPI disabled
133 SPCR=(0<<SPIE) | (0<<SPE) | (0<<DORD) | (0<<MSTR) | (0<<CPOL) | (0<<CPHA) | (0<<SPR1) | (0<<SPR0);
134
135 // TWI initialization
136 // TWI disabled
137 TWCR=(0<<TWEA) | (0<<TWSTA) | (0<<TWSTO) | (0<<TWEN) | (0<<TWIE);
138
139 while (1)
140 {
141     PORTA = hijau;
142     PORTB = merah;
143     PORTC = merah;
144     PORTD = merah;
145
146     delay_ms(200);
147     PORTA = kuning;
148     delay_ms(50);
149     PORTA = merah;
150     delay_ms(20);
151
152     PORTB = hijau;
153     delay_ms(200);
154     PORTB = kuning;
155     delay_ms(50);
156     PORTB = merah;
157     delay_ms(20);
158
159     PORTC = hijau;
160     delay_ms(200);
161     PORTC = kuning;
162     delay_ms(50);
163     PORTC = merah;
164     delay_ms(20);
165
166     PORTD = hijau;
167     delay_ms(200);
168     PORTD = kuning;
169     delay_ms(50);
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170      }  
171  }  
172
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