



Instituto Politécnico Nacional



Escuela Superior de Computo

Materia:

Introducción a los microcontroladores.

Profesor:

Sanchez Aguilar Fernando

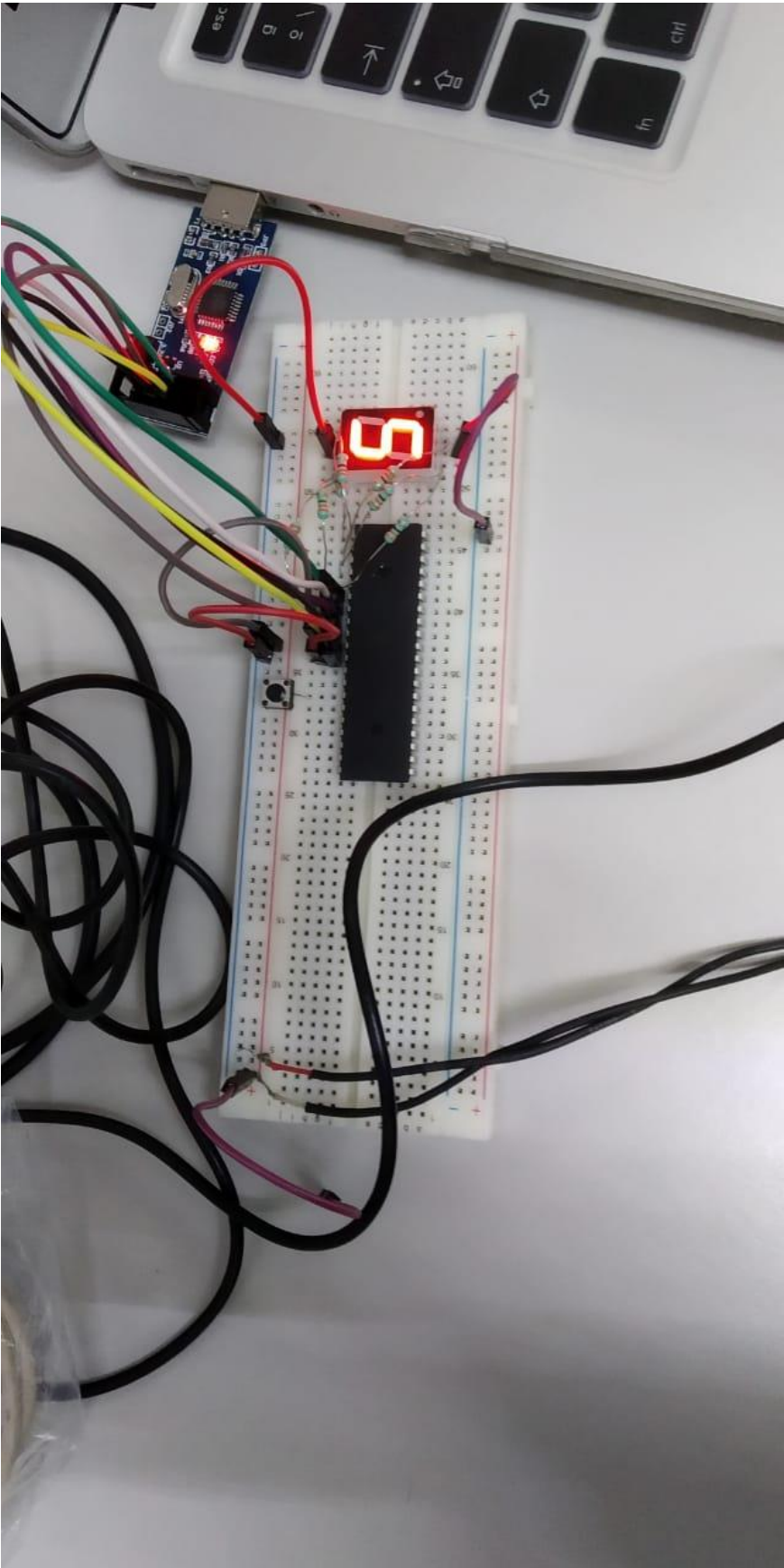
Alumnos:

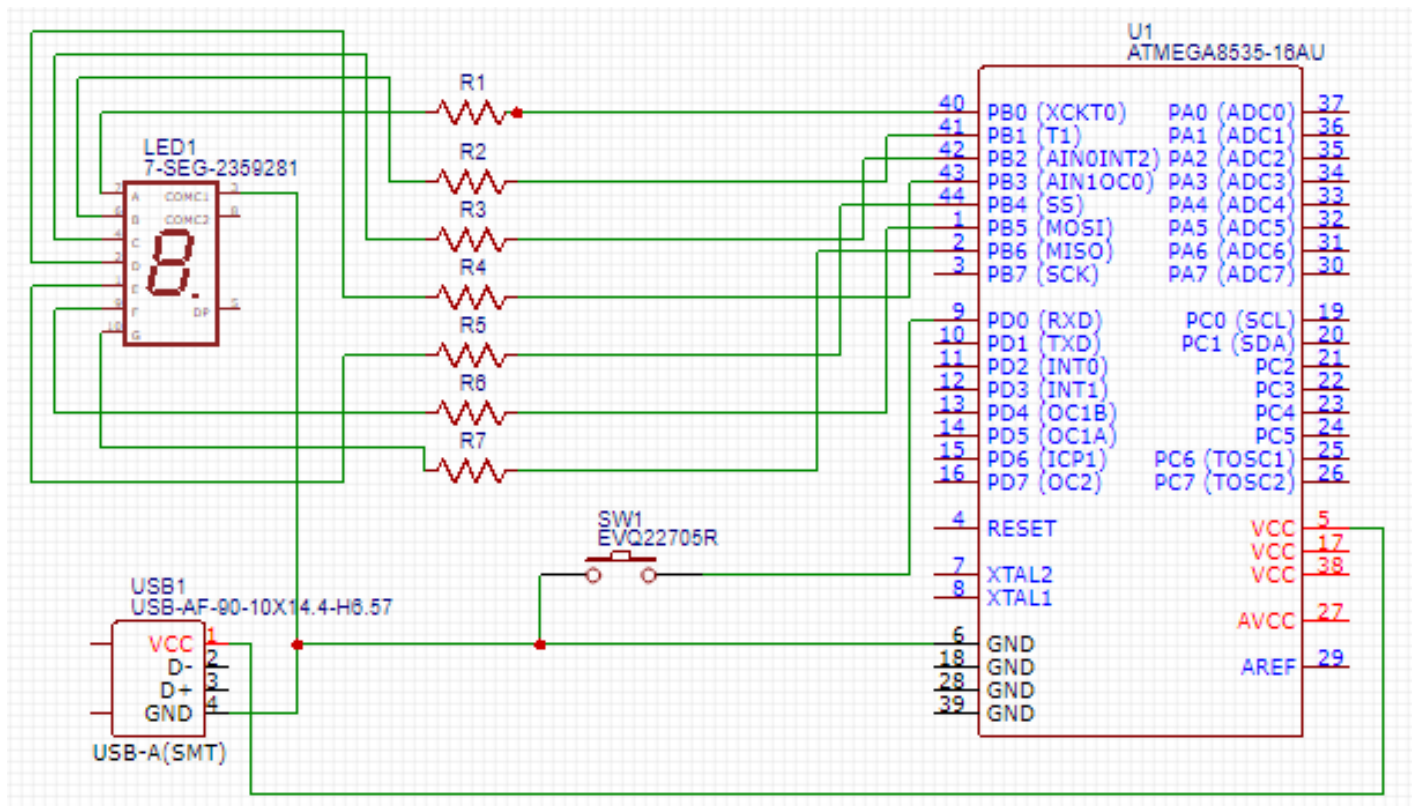
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Practica N°5





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1.  /*****
2.  This program was created by the
3.  CodeWizardAVR V2.60 Evaluation
4.  Automatic Program Generator
5.  © Copyright 1998-2012 Pavel Haiduc, HP InfoTech s.r.l.
6.  http://www.hpinfotech.com
7.
8.  Project :
9.  Version :
10. Date   : 28/01/2019
11. Author :
12. Company :
13. Comments:
14.
15.
16. Chip type           : ATmega8535L
17. Program type        : Application
18. AVR Core Clock frequency: 1,000000 MHz
19. Memory model        : Small
20. External RAM size    : 0
21. Data Stack size     : 128
22. *****/
23.
24. #include <mega8535.h>
25. #define boton PIND.0

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26. bit botonp;
27. bit botona;
28. unsigned char var;
29. const char tabla7segmentos [10]={0x3f,0x06,0x5b,0x4f,0x66,0x6d,0x7c,0x07,0x7f,0x6f
    };
30. // Declare your global variables here
31.
32. void main(void)
33. {
34. // Declare your local variables here
35.
36. // Input/Output Ports initialization
37. // Port A initialization
38. // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=In Bit1=In Bit0=In
39. DDRA=(0<<DDA7) | (0<<DDA6) | (0<<DDA5) | (0<<DDA4) | (0<<DDA3) | (0<<DDA2) | (0<<D
    DA1) | (0<<DDA0);
40. // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T Bit1=T Bit0=T
41. PORTA=(0<<PORTA7) | (0<<PORTA6) | (0<<PORTA5) | (0<<PORTA4) | (0<<PORTA3) | (0<<PO
    RTA2) | (0<<PORTA1) | (0<<PORTA0);
42.
43. // Port B initialization
44. // Function: Bit7=Out Bit6=Out Bit5=Out Bit4=Out Bit3=Out Bit2=Out Bit1=Out Bit0=O
    ut
45. DDRB=(1<<DDB7) | (1<<DDB6) | (1<<DDB5) | (1<<DDB4) | (1<<DDB3) | (1<<DDB2) | (1<<D
    DB1) | (1<<DDB0);
46. // State: Bit7=0 Bit6=0 Bit5=0 Bit4=0 Bit3=0 Bit2=0 Bit1=0 Bit0=0
47. PORTB=(0<<PORTB7) | (0<<PORTB6) | (0<<PORTB5) | (0<<PORTB4) | (0<<PORTB3) | (0<<PO
    RTB2) | (0<<PORTB1) | (0<<PORTB0);
48.
49. // Port C initialization
50. // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=In Bit1=In Bit0=In
51. DDRC=(0<<DDC7) | (0<<DDC6) | (0<<DDC5) | (0<<DDC4) | (0<<DDC3) | (0<<DDC2) | (0<<D
    DC1) | (0<<DDC0);
52. // State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T Bit1=T Bit0=T
53. PORTC=(0<<PORTC7) | (0<<PORTC6) | (0<<PORTC5) | (0<<PORTC4) | (0<<PORTC3) | (0<<PO
    RTC2) | (0<<PORTC1) | (0<<PORTC0);
54.
55. // Port D initialization
56. // Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In Bit2=In Bit1=In Bit0=In
57. DDRD=(0<<DDD7) | (0<<DDD6) | (0<<DDD5) | (0<<DDD4) | (0<<DDD3) | (0<<DDD2) | (0<<D
    DD1) | (0<<DDD0);
58. // State: Bit7=P Bit6=P Bit5=P Bit4=P Bit3=P Bit2=P Bit1=P Bit0=P
59. PORTD=(1<<PORTD7) | (1<<PORTD6) | (1<<PORTD5) | (1<<PORTD4) | (1<<PORTD3) | (1<<PO
    RTD2) | (1<<PORTD1) | (1<<PORTD0);
60.
61. // Timer/Counter 0 initialization
62. // Clock source: System Clock
63. // Clock value: Timer 0 Stopped
64. // Mode: Normal top=0xFF
65. // OC0 output: Disconnected
66. TCCR0=(0<<WGM00) | (0<<COM01) | (0<<COM00) | (0<<WGM01) | (0<<CS02) | (0<<CS01) |
    (0<<CS00);
67. TCNT0=0x00;
68. OCR0=0x00;
69.
70. // Timer/Counter 1 initialization
71. // Clock source: System Clock
72. // Clock value: Timer1 Stopped
73. // Mode: Normal top=0xFFFF
74. // OC1A output: Disconnected
75. // OC1B output: Disconnected

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76. // Noise Canceler: Off
77. // Input Capture on Falling Edge
78. // Timer1 Overflow Interrupt: Off
79. // Input Capture Interrupt: Off
80. // Compare A Match Interrupt: Off
81. // Compare B Match Interrupt: Off
82. TCCR1A=(0<<COM1A1) | (0<<COM1A0) | (0<<COM1B1) | (0<<COM1B0) | (0<<WGM11) | (0<<WGM10);
83. TCCR1B=(0<<ICNC1) | (0<<ICES1) | (0<<WGM13) | (0<<WGM12) | (0<<CS12) | (0<<CS11) | (0<<CS10);
84. TCNT1H=0x00;
85. TCNT1L=0x00;
86. ICR1H=0x00;
87. ICR1L=0x00;
88. OCR1AH=0x00;
89. OCR1AL=0x00;
90. OCR1BH=0x00;
91. OCR1BL=0x00;
92.
93. // Timer/Counter 2 initialization
94. // Clock source: System Clock
95. // Clock value: Timer2 Stopped
96. // Mode: Normal top=0xFF
97. // OC2 output: Disconnected
98. ASSR=0<<AS2;
99. TCCR2=(0<<WGM20) | (0<<COM21) | (0<<COM20) | (0<<WGM21) | (0<<CS22) | (0<<CS21) | (0<<CS20);
100. TCNT2=0x00;
101. OCR2=0x00;
102.
103. // Timer(s)/Counter(s) Interrupt(s) initialization
104. TIMSK=(0<<OCIE2) | (0<<TOIE2) | (0<<TICIE1) | (0<<OCIE1A) | (0<<OCIE1B) | (0<<TOIE1) | (0<<OCIE0) | (0<<TOIE0);
105.
106. // External Interrupt(s) initialization
107. // INT0: Off
108. // INT1: Off
109. // INT2: Off
110. MCUCR=(0<<ISC11) | (0<<ISC10) | (0<<ISC01) | (0<<ISC00);
111. MCUCSR=(0<<ISC2);
112.
113. // USART initialization
114. // USART disabled
115. UCSRB=(0<<RXCIE) | (0<<TXCIE) | (0<<UDRIE) | (0<<RXEN) | (0<<TXEN) | (0<<UCSZ2) | (0<<RXB8) | (0<<TXB8);
116.
117. // Analog Comparator initialization
118. // Analog Comparator: Off
119. ACSR=(1<<ACD) | (0<<ACBG) | (0<<ACO) | (0<<ACI) | (0<<ACIE) | (0<<ACIC) | (0<<ACIS1) | (0<<ACIS0);
120. SFIOR=(0<<ACME);
121.
122. // ADC initialization
123. // ADC disabled
124. ADCSRA=(0<<ADEN) | (0<<ADSC) | (0<<ADATE) | (0<<ADIF) | (0<<ADIE) | (0<<ADPS2) | (0<<ADPS1) | (0<<ADPS0);
125.
126. // SPI initialization
127. // SPI disabled
128. SPCR=(0<<SPIE) | (0<<SPE) | (0<<DORD) | (0<<MSTR) | (0<<CPOL) | (0<<CPHA) | (0<<SPR1) | (0<<SPR0);

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129.  
130.    // TWI initialization  
131.    // TWI disabled  
132.    TWCR=(0<<TWEA) | (0<<TWSTA) | (0<<TWSTO) | (0<<TWEN) | (0<<TWIE);  
133.  
134.    while (1)  
135.    {  
136.        if(boton==0)  
137.            botona=0;  
138.        else  
139.            botona=1;  
140.        if((botona==0)&&(botonp==1))  
141.            var++;  
142.        if(var==10)  
143.            var=0;  
144.        PORTB=tabla7segmentos [var];  
145.        botonp=botona;  
146.  
147.    };  
148. }
```